Wireless Pocket USB

IEEE 802.11b/g

User Manual

Rev. 1.0

Setp. 2004

FCC Information to User

Model: Wireless Pocket USB
FCC ID: RC6AWU-902W

FCC Caution

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Guidelines for Human Exposure

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 1.5 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Regulatory Compliance Information

This section includes user requirements for operating this product in accordance with National laws for usage of radio spectrum and operation of radio devices. Failure of the end-user to comply with the applicable requirements may result in unlawful operation and adverse action against the end-user by the applicable National regulatory authority.

FCC Requirements for Operation in the United States

Radio Frequency Interference Warnings & Instructions

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following methods:

• Reorient or relocate the receiving antenna
• Increase the separation between the equipment and the receiver
• Connect the equipment into an electrical outlet on a circuit different from that which the radio receiver is connected
• Consult the dealer or an experienced radio/TV technician for help.

Modifications made to the product could void the user's right to operate the equipment.

Europe - EU Declaration of Conformity

This device is a 2.4 GHz low power RF device intended for home and office use in EU and EFTA member states. In some EU / EFTA member states some restrictions may apply. Please contact local spectrum management authorities for further details before putting this device into operation.

Note: CE certificate is not applied for module.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of March 9, 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE).
The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

Requirements For Operation in the European Community

Countries of Operation and Conditions of Use in the European Community

The user should run the utility program provided with this product to check the current channel of operation and confirm that the device is operating in conformance with the spectrum usage rules for European Community countries as described in this section. This device is intended to be operated in all countries of the European Community.

Operation Using 2.4 GHz Channels in France

The following radio channel usage limitations apply in France.
The radio spectrum regulator in France, Autorité de regulation des telecommunications (ART), enforces the following rules with respect to use of 2.4GHz spectrum in various locations in France. Please check ART's web site for latest requirements for use of the 2.4GHz band in France: http://www.art-telecom.fr/eng/index.htm.
When operating in the following metropolitan regions (départements) in France, this device may be operated under the following conditions:

- Indoors using any channel in the 2.4-2.4835 GHz band (Channels 1-13)
- Outdoors using channels in the 2.4-2.454 GHz band (Channels 1-7)

When operating outside of the following regions (départements) in France such as Guadeloupe, Martinique, St Pierre et Miquelon, Mayotte, this product can be operated under the following conditions:

• Indoors using any channel in the 2.4-2.4835 GHz band (Channels 1-13)
• Outdoors using any channel in the 2.4-2.4835 GHz band (Channels 1-13)

When operating outside of the following regions (départements) in France such as Réunion and Guyana, this product can be operated under the following conditions:

• Indoors using any channel in the 2.4-2.4835 GHz band (Channels 1-13)
• Outdoors using channels in the 2.420-2.4835 GHz band (Channels 3-13)

Please refer to the ART web site for further details.

Metropolitan Regions:

01	Ain	36	Indre	69	Rhône
02	Aisne	37	Indre et Loire	70	Haute Saône
03	Allier	39	Jura	71	Saône et Loire
05	Hautes Alpes	41	Loir et Cher	72	Sarthe
08	Ardennes	42	Loire	75	Paris
09	Ariège	45	Loiret	77	Seine et Marne
10	Aube	50	Manche	78	Yvelines
11	Aude	54	Meurthe et Moselle	79	Deux Sèvres
12	Aveyron	55	Meuse	82	Tarn et Garonne
16	Charente	57	Moselle	84	Vaucluse
19	Corrèze	58	Nièvre	86	Vienne
2A	Corse Sud	59	Nord	88	Vosges
2B	Haute Corse	60	Oise	89	Yonne
21	Côte d'Or	61	Orne	90	Territoire de Belfort
24	Dordogne	63	Puy de Dôme	91	Essonne
25	Doubs	64	Pyrénées Atlantique	92	Hauts de Seine
26	Drôme	65	Hautes Pyrénées	93	Seine St Denis
27	Eure	66	Pyrénées Orientales	94	Val de Marne
32	Gers	67	Bas Rhin		
35	Ille et Vilaine	68	Haut Rhin		

Table of Contents

Chapter 1 Introduction

1.1 Preface

The miniature Wireless Pocket USB gives you ultimate mobility in your office or while you are traveling. It frees you from traditional Ethernet wiring and helps you connect to an existing wireless network for sharing your broadband cable or DSL Internet access. It is designed for PC computers running Microsoft® Windows® 98SE, ME, 2000 and XP operating systems. It is USB 2.0 compliant and is backwards compatible with USB 1.1. Its auto-sensing capability allows high packet transfer at up to 54 Mbps for maximum throughput or dynamic range shifting to lower speeds due to distance or operating limitations in an environment with a lot of electromagnetic interference. The Wireless Pocket USB complies to IEEE 802.11b/g standards and provides 54 Mbps WLAN connectivity. It can protect data integrity with enterprise-level security.

1.2 Key Features

- Operate at 2.4GHz unlicensed frequency with data transmission rate up to 54Mbps
- IEEE standards support: IEEE 802.11b, 802.11g
- Advanced security features including WEP 64-bit, 128-bit
- USB 2.0 interface compliant with USB 1.1
- Full-featured WLAN management software utility
- Compatible with Windows 98SE, ME, 2000 and XP

1.3 Kit Contents

- Wireless Pocket USB
- Set-up CD with User Manual & Software Utility
- Neckwear
- USB 2.0 cradle with 3.7 feet (1.1 meters) integrated cable (option)

1.4 System Requirements

A computer must be at least equipped with the following requirements:

- available USB 2.0 port or USB 1.1 port
- CD-ROM drive
- Microsoft® Windows® 98SE, ME, 2000 or XP operating system
- Pentium® II 450MHz or faster processor
- 64 Mbytes RAM
- 50 Mbytes free hard disk space

1.5 LED Definition

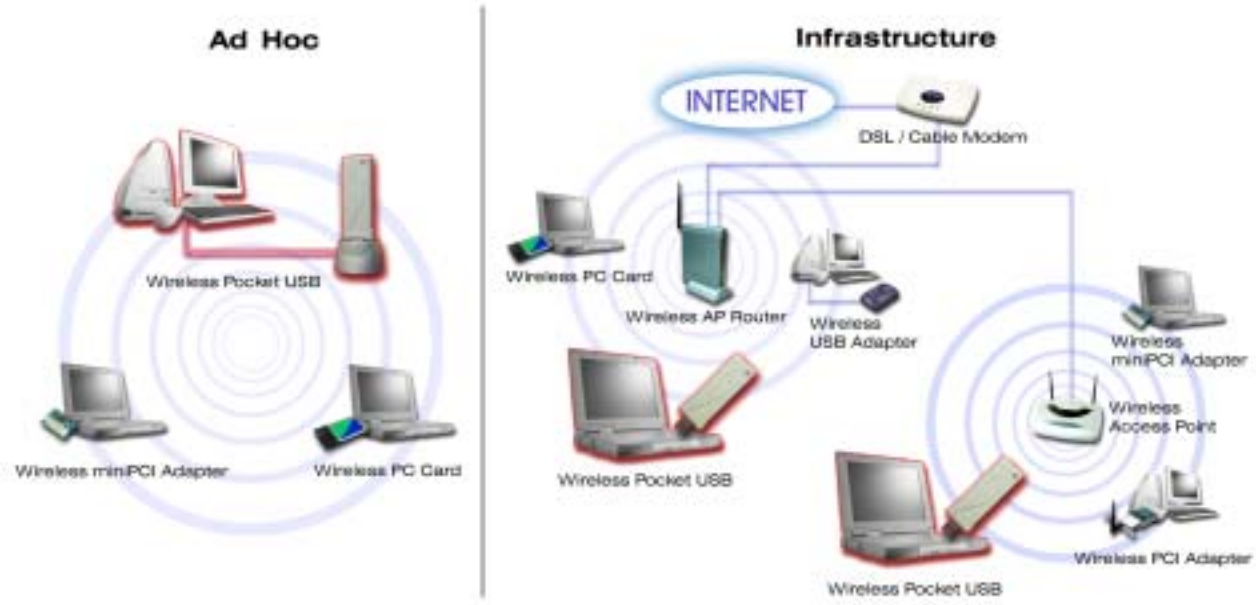
- Act : flash during data transmitting
- Link : lit when wireless connection established

1.6 Two Basic Operating Modes

This Pocket USB can be operated in the following two basic modes:

1. Infrastructure Mode: An 802.11 networking framework in which devices and computers communicate with each other by first going through an Access Point (AP). For example, this mode is used when computers in a house connect to an AP that is attached to a router that lets multiple computers share a single Cable or DSL broadband Internet connection.
2. Ad Hoc Mode: An 802.11 networking framework in which devices or computers communicate directly with each other, without the use of an AP. For example, Ad Hoc Mode is used when two Windows computers are configured with file and print sharing enabled and you want to exchange files directly between them.

Both of these configuration options are available with this Pocket USB and are instructed in this user manual.



1.7 Location and Range

Computers can connect over wireless networks indoors at a range which vary significantly based on the physical location of the computer with the Wireless Pocket USB. For best results, avoid potential sources of interference, such as:

• Large metal surfaces

• Microwaves ovens

• 2.4GHz Cordless phones

In general, wireless devices can communicate through walls. However, if the walls are constructed with concrete, or have metal, or metal mesh, the effective range will decrease between the devices.

Chapter 2 Driver and Utility Installation

This chapter explains how, and what, is needed to install driver and software utility. These include:

- Installing Driver and Software Utility
- Disabling the Windows XP's Zero Configuration
- Invoking the Driver Utility

2.1 Installing the Pocket USB

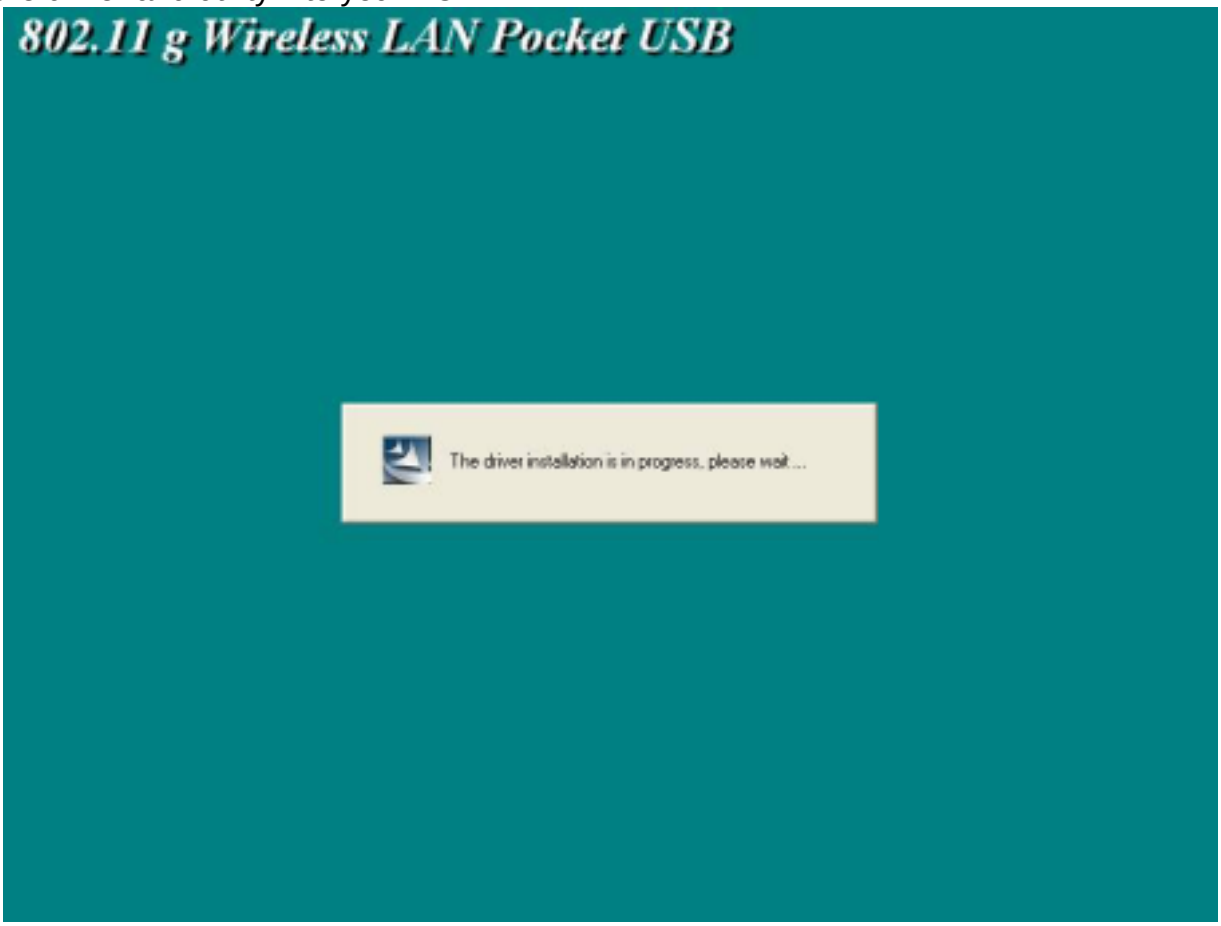
Turn on your PC, log in the operating system, connect this Wireless Pocket USB via the USB 2.0 cable or the USB 2.0 cradle or simply directly plug it into your PC.

USB 2.0 cable

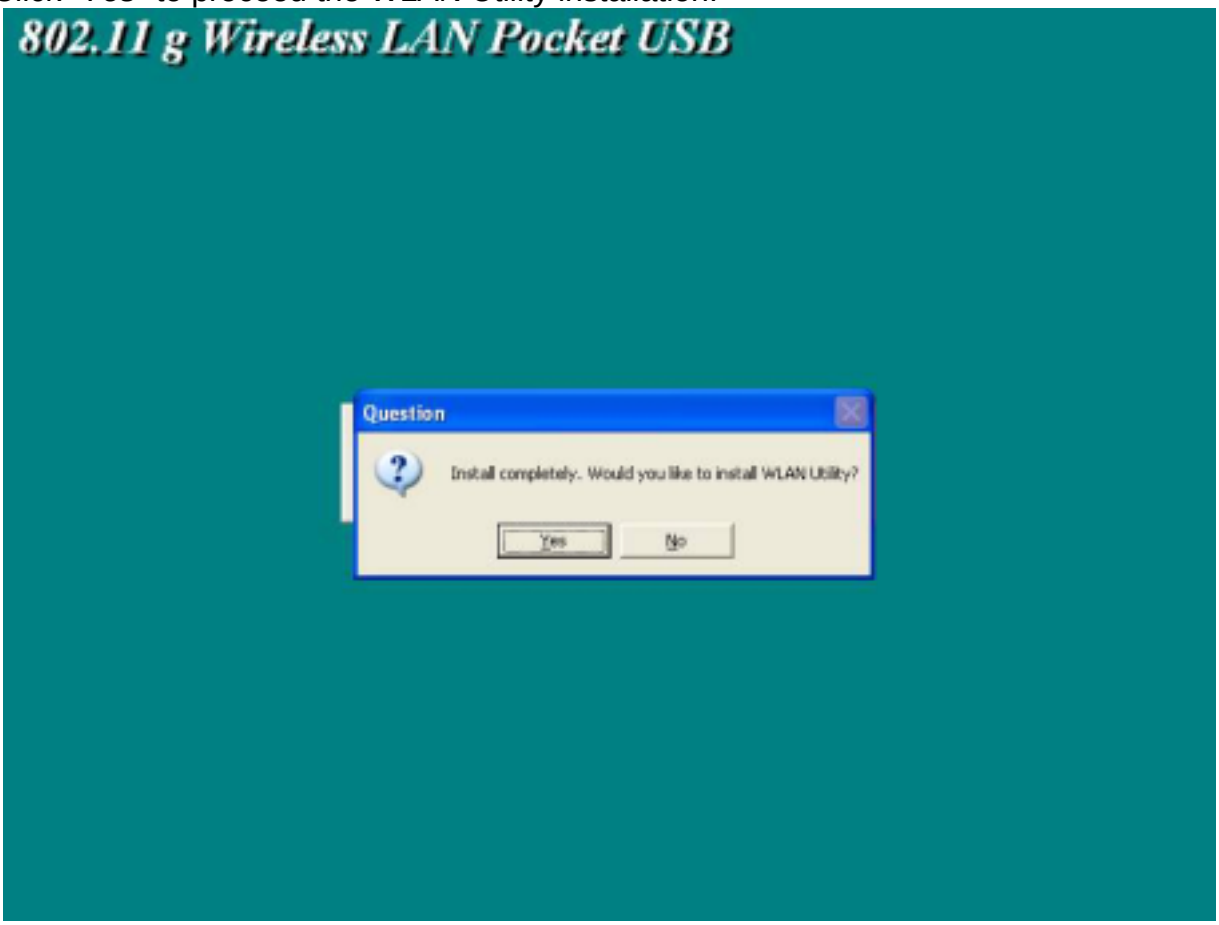
USB 2.0 cable & cradle

2.2 Install the Driver and Software Utility

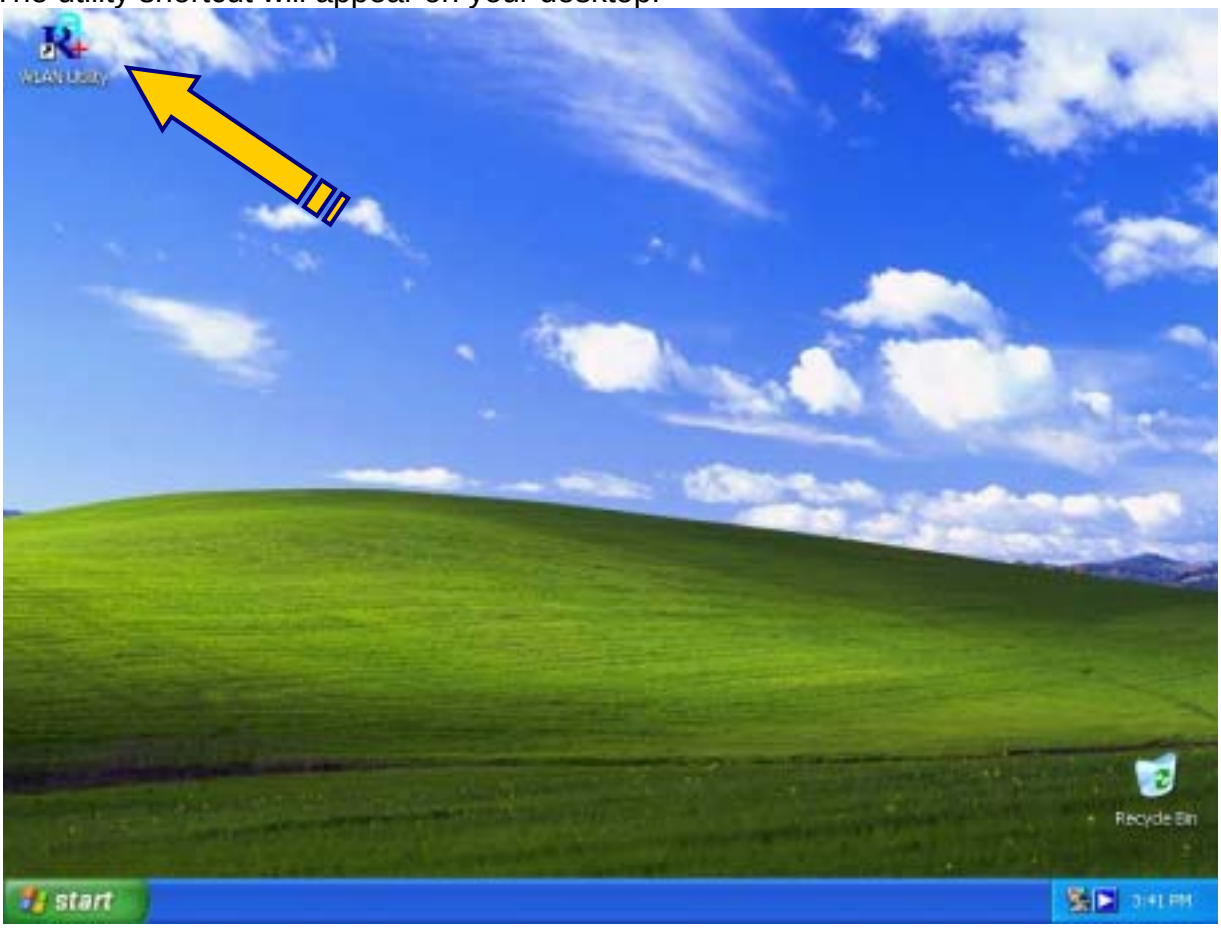
1. Insert the packaged CD into your CD-ROM drive. The CD will automatically start to install the driver and utility into your PC.



2. Click "*Yes*" to proceed the WLAN Utility installation.



3. The utility shortcut will appear on your desktop.



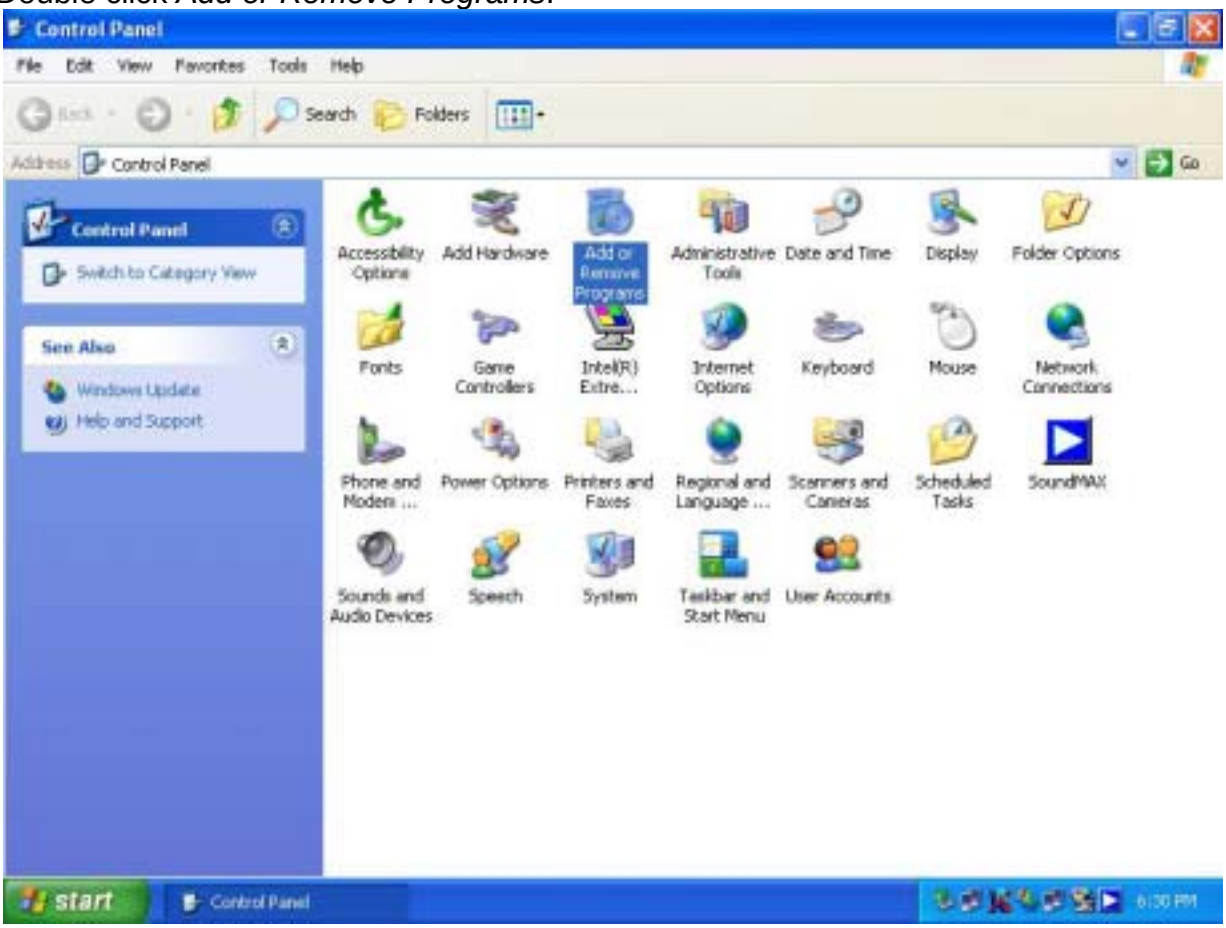
4. After clicking desktop icon then you will see this Pocket USB's system tray icon on the lower right portion of the Windows task bar.

5. For Windows XP users, you will be asked to select the Launch Config Utility installed or the RaConfig as Configuration Utility. This manual instructs the former.

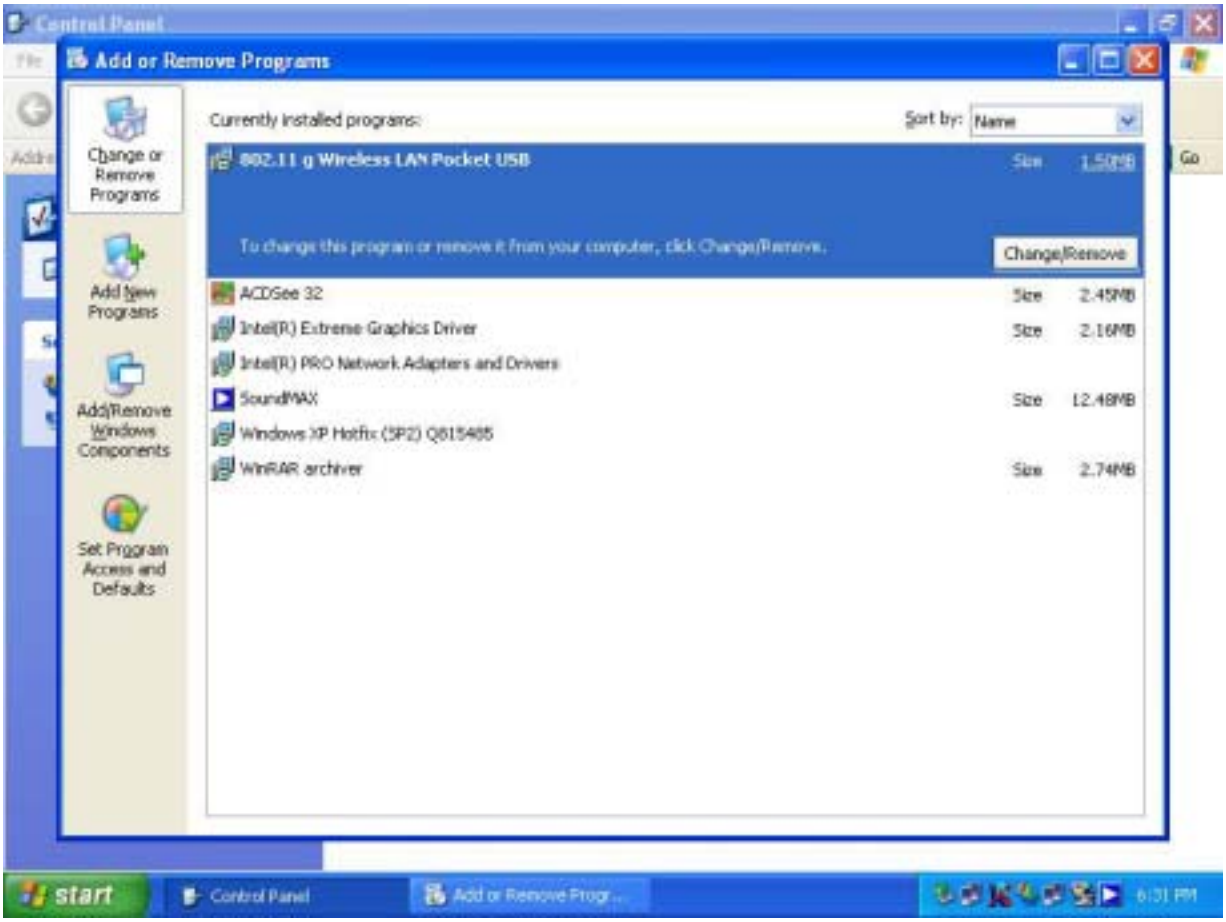
2.3 Uninstall the Driver and Software Utility

1. Open *Control Panel*.

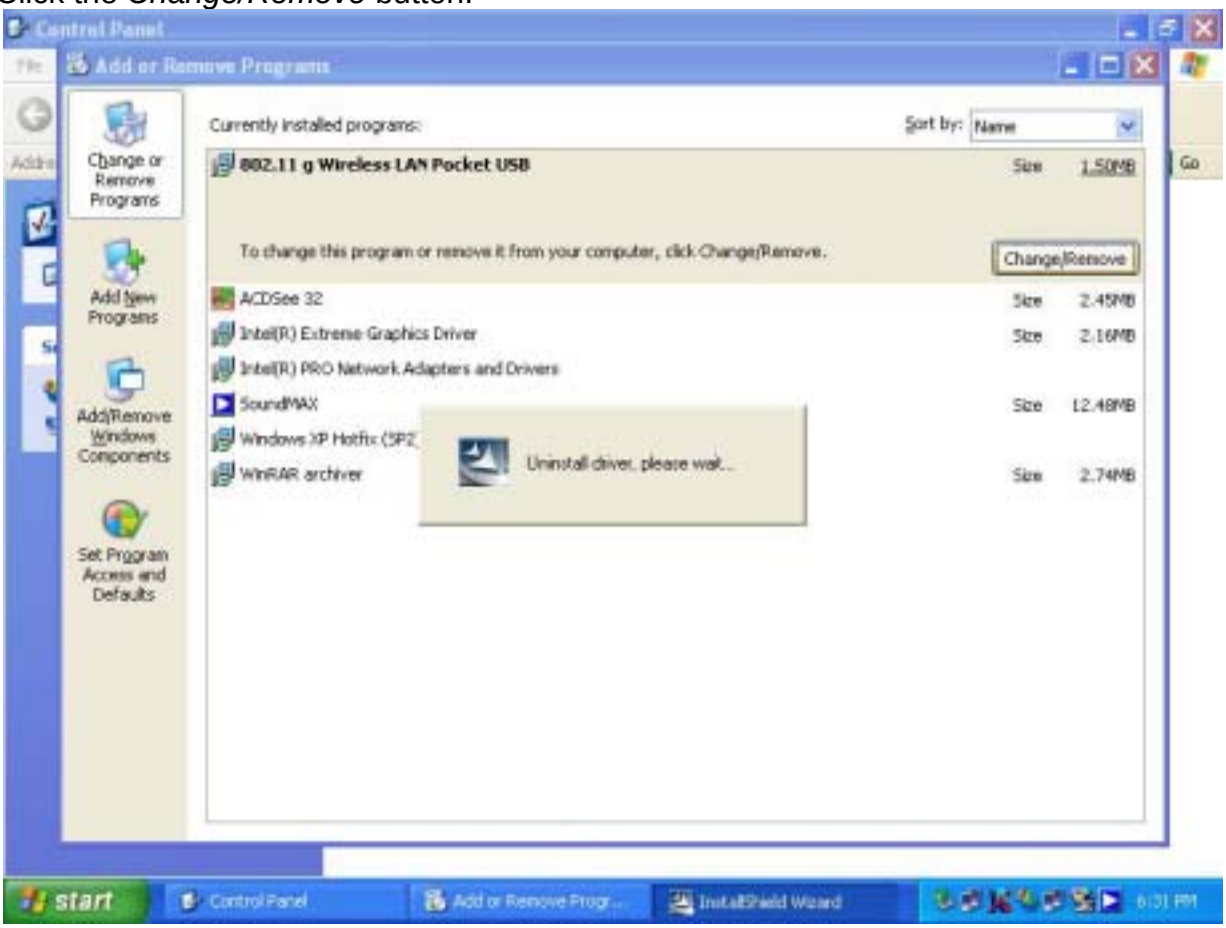
2. Double click *Add or Remove Programs*.



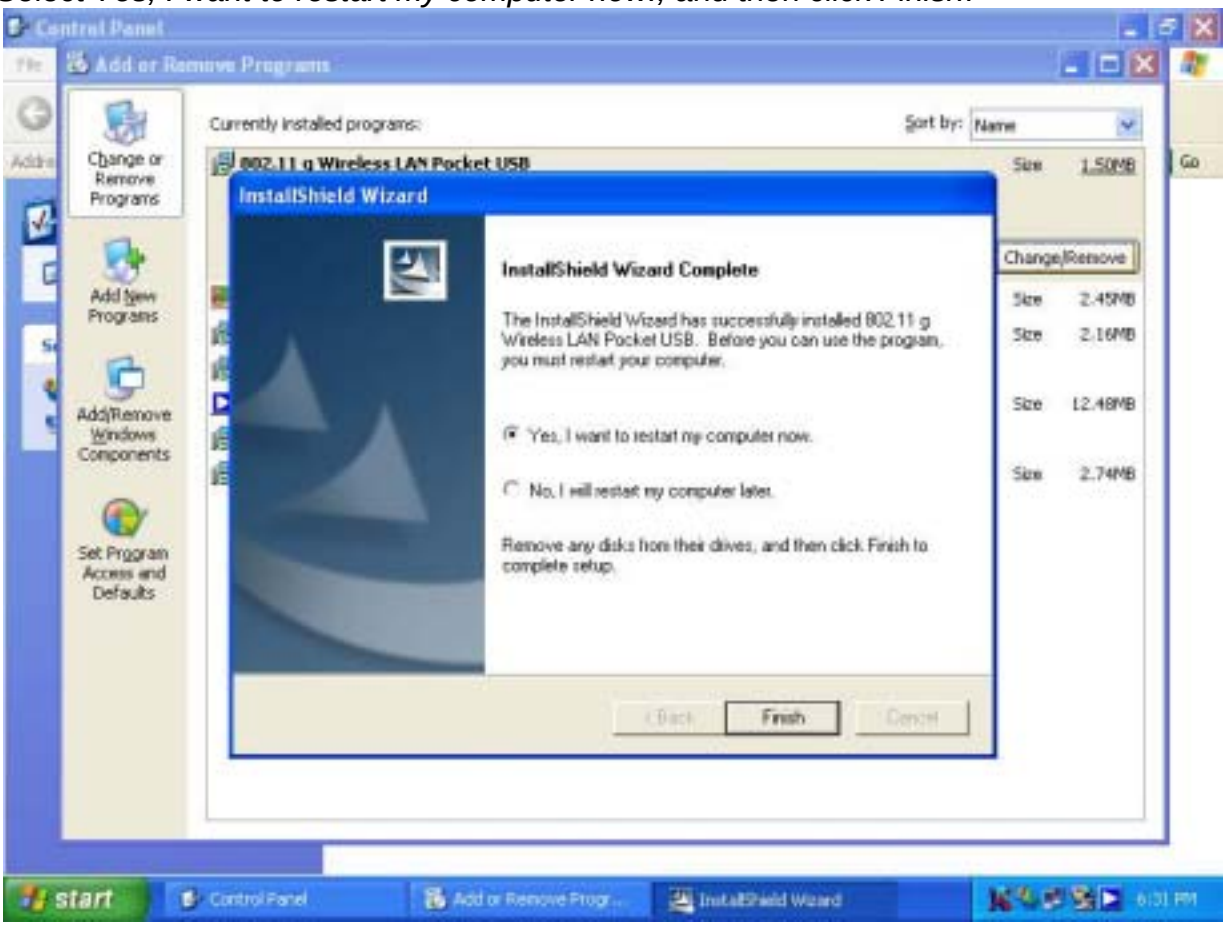
3. Select the *Pocket USB* from the list.



4. Click the *Change/Remove* button.



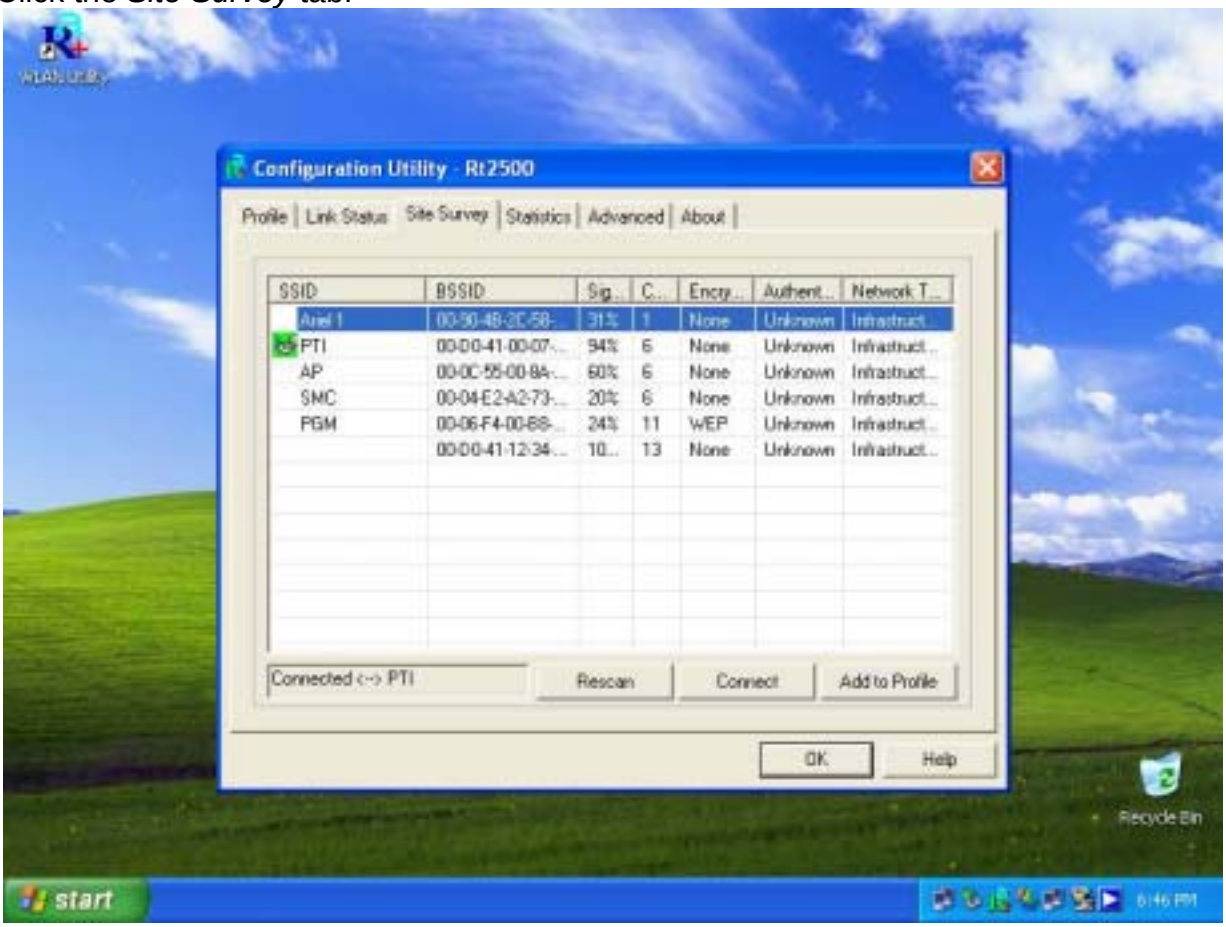
5. Select *Yes, I want to restart my computer now.*, and then click *Finish*.



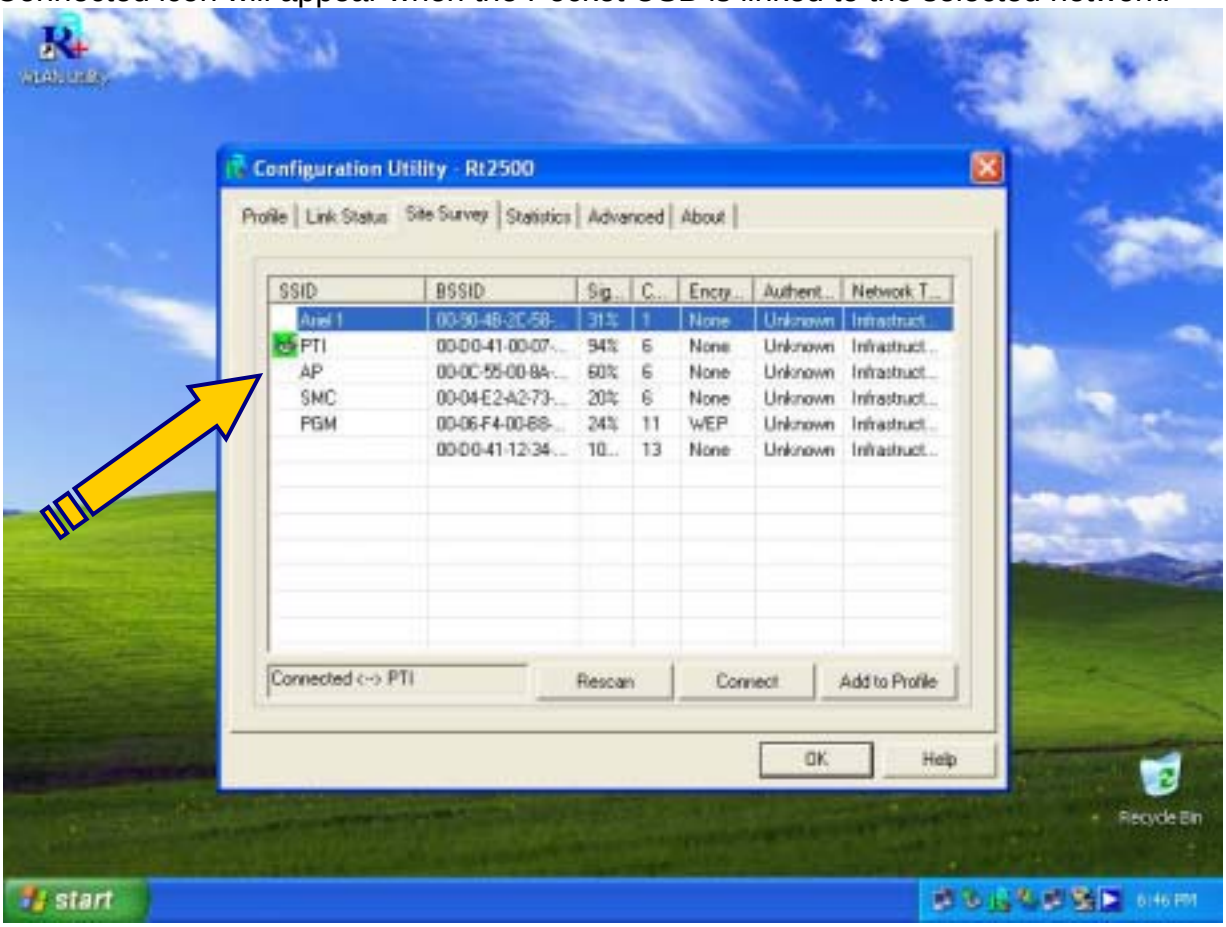
Chapter 3 Quick Start to Join in a Wireless Network

1. Double click the Pocket USB*'s system tray icon* to open the WLAN Configuration Utility.

2. Click the *Site Survey* tab.



3. This Pocket USB will auto-select the best wireless network to connect. You can also select one network with strongest signal and no security, and click the *Connect* button. A Connected icon will appear when the Pocket USB is linked to the selected network.



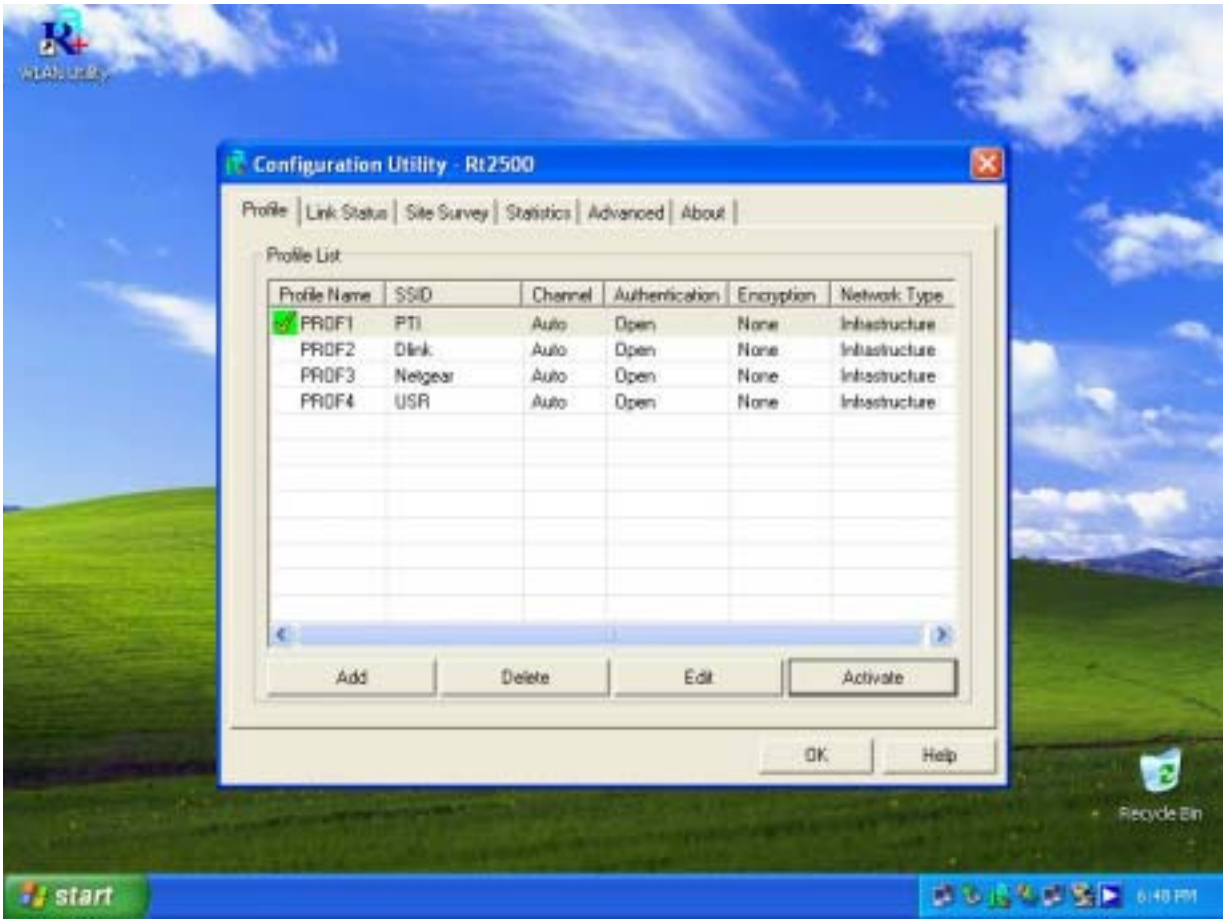
4. Refer to Chapter 5 Configuration for more configuration details.

Chapter 4 Software Utility - WLAN Configuration Utility

4.1 Overview

- Profiles: A set of preset system parameters, or “snapshots”, of the available APs within a wireless network. You can record these “snapshots”. After this Pocket USB is connected to an AP, you can save the system parameters as these specific profiles. It significantly minimizes access time to the same wireless network while this Pocket USB is initializing.
- Link Status: A status screen that tells you information of this Pocket USB and link condition of the current network.
- Site Survey: Initiate a survey of the current available wireless networks and display these APs, the Ad Hoc stations, and their associated information.
- Statistics: Monitor the Pocket USB's current traffic activity when connected to a wireless network.
- Advance: Configure advanced operation parameters and display extra options. Note that some options are not supported currently.
- About: Hardware information of this Pocket USB and its software elements.

4.2 Profiles Tab



4.2.1 Profiles List Section

- Profile Name: List all profiles you named.
- SSID: The specific name of each AP or Ad Hoc station in your profiles.
- Channel: Current channel adopted by this network.
- Authentication: The authentication type adopted by each AP or Ad Hoc station.

- Encryption: The encryption type adopted by each AP or Ad Hoc station.
- Network Type: Infrastructure mode or Ad Hoc mode.

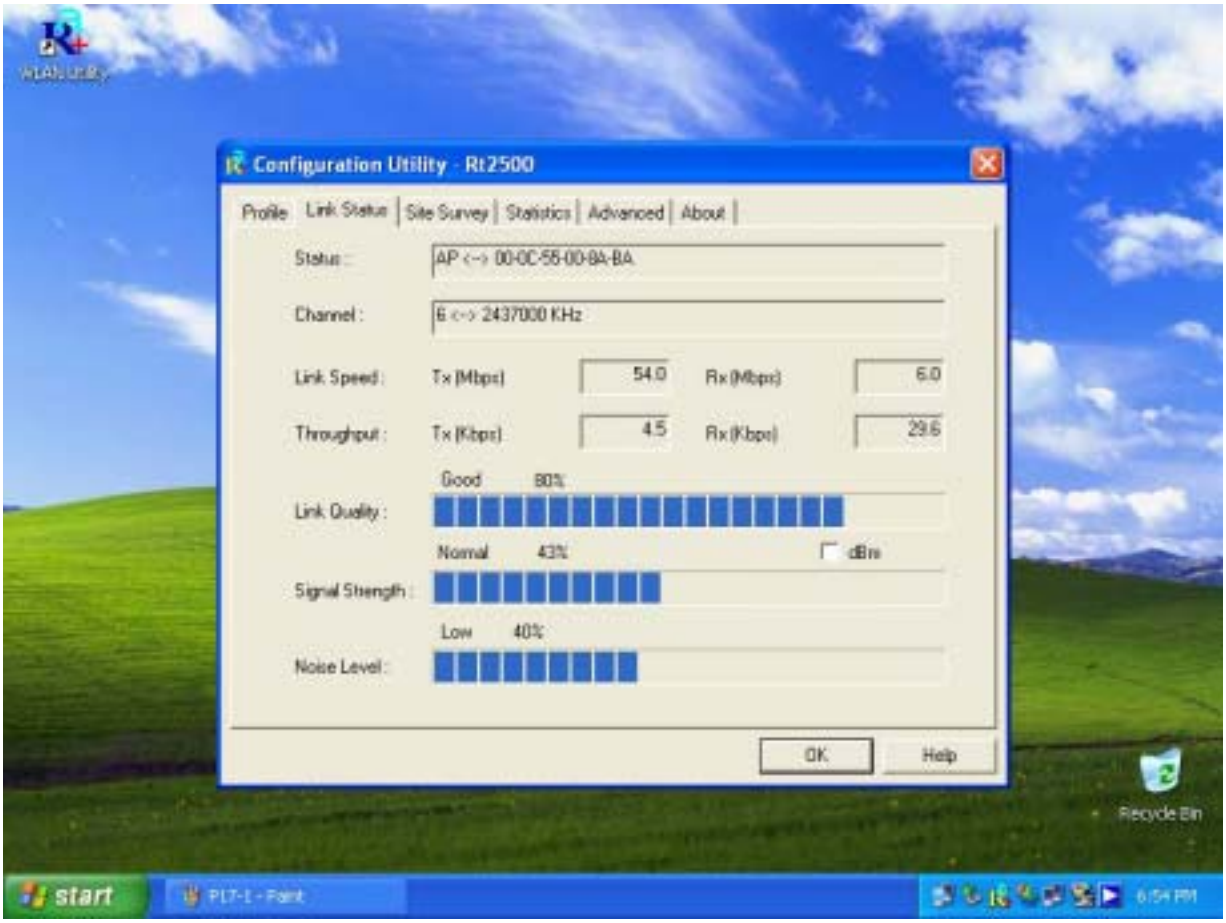
4.2.2 Buttons

- Add: Define a new profile. Refer to 4.8 Profile.
- Delete: Delete a profile.
- Edit: Alter an existing profile.
- Activate: Connect the Pocket USB to the selected network.

4.2.3 Icon

- Connected: Connection built with this specified network.
- Disconnected: Fail to build connection with this specified network.

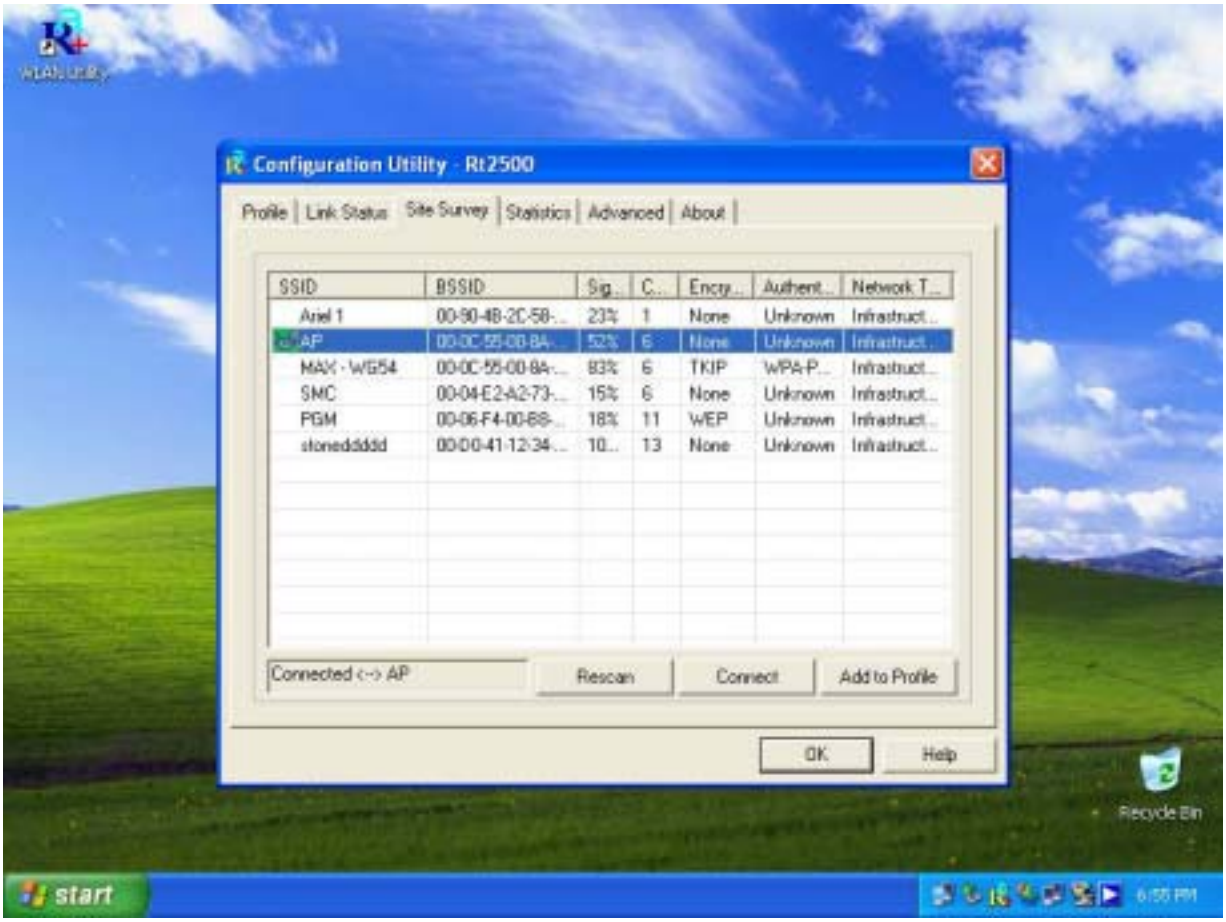
4.3 Link Status Tab



- Status: SSID and BSSID of the currently connected network.
- Channel: Current channel and its corresponding frequency.
- Link Speed (Mbps): The data transfer speed adopted by this network (measured in Mbits per second).
- Throughput (Kbps): Current transmit rate (TX) and receive rate (RX) (measured in Kbits per second).
- Link Quality: Throughput Level where 100% equals the maximum connection quality.
- Signal Strength: The receive signal strength level. Check the dBm checkbox to display in dBm format.

- Noise Level: Current interference level where 0% equals the best connection quality.

4.4 Site Survey Tab



4.4.1 Site Section

- SSID: The name of each AP or Ad Hoc station.
- BSSID: The MAC address of SSID.
- Signal: Indicate each associated network's link quality measured in percentage.
- Channel: Current channel adopted by this network.
- Encryption: The encryption type adopted by each AP or Ad Hoc station.
- Authentication: The authentication type adopted by each AP or Ad Hoc station.
- Network Type: Infrastructure mode or Ad Hoc mode.

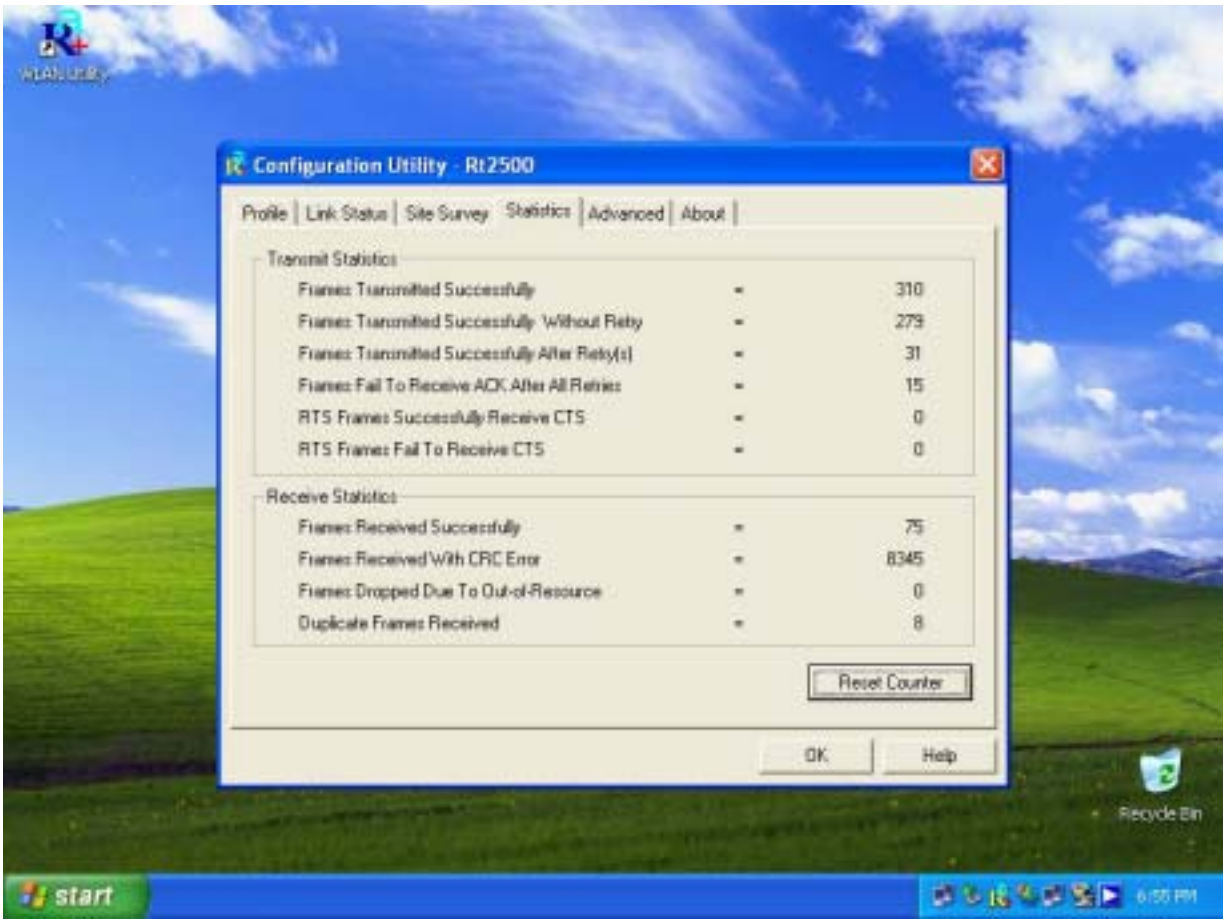
4.4.2 Buttons

- Rescan: Update associated networks.
- Connect: Connect to the selected network.
- Add to Profile: Save the selected network connection status into a profile. Refer to 4.8 Add Profile.

4.4.3 Icons

- Connected: Connection built with this specified network. A status bar on the left-bottom side of the window will show the connected SSID.

4.5 Statistics Tab



4.5.1 Transmit Statistics Section

- Frames Transmitted Successfully: The number of successfully transmitted frames.
- Frames Transmitted Successfully without Retry: The number of successfully transmitted frames without any retry.
- Frames Transmitted Successfully after Retry(s): The number of successfully transmitted frames with one or more retries.
- Frames Fail to Receive ACK After all Retries: The number of unsuccessfully transmitted frame with many retries.
- RTS Frames Successfully Receive CTS: The number of successfully received the CTS (Clear To Send) response after this Pocket USB sends out the RTS (Request To Send) message.
- RTS Frames Fail to Receive CTS: The number of unsuccessfully received the CTS response after this Pocket USB sends out the RTS message.

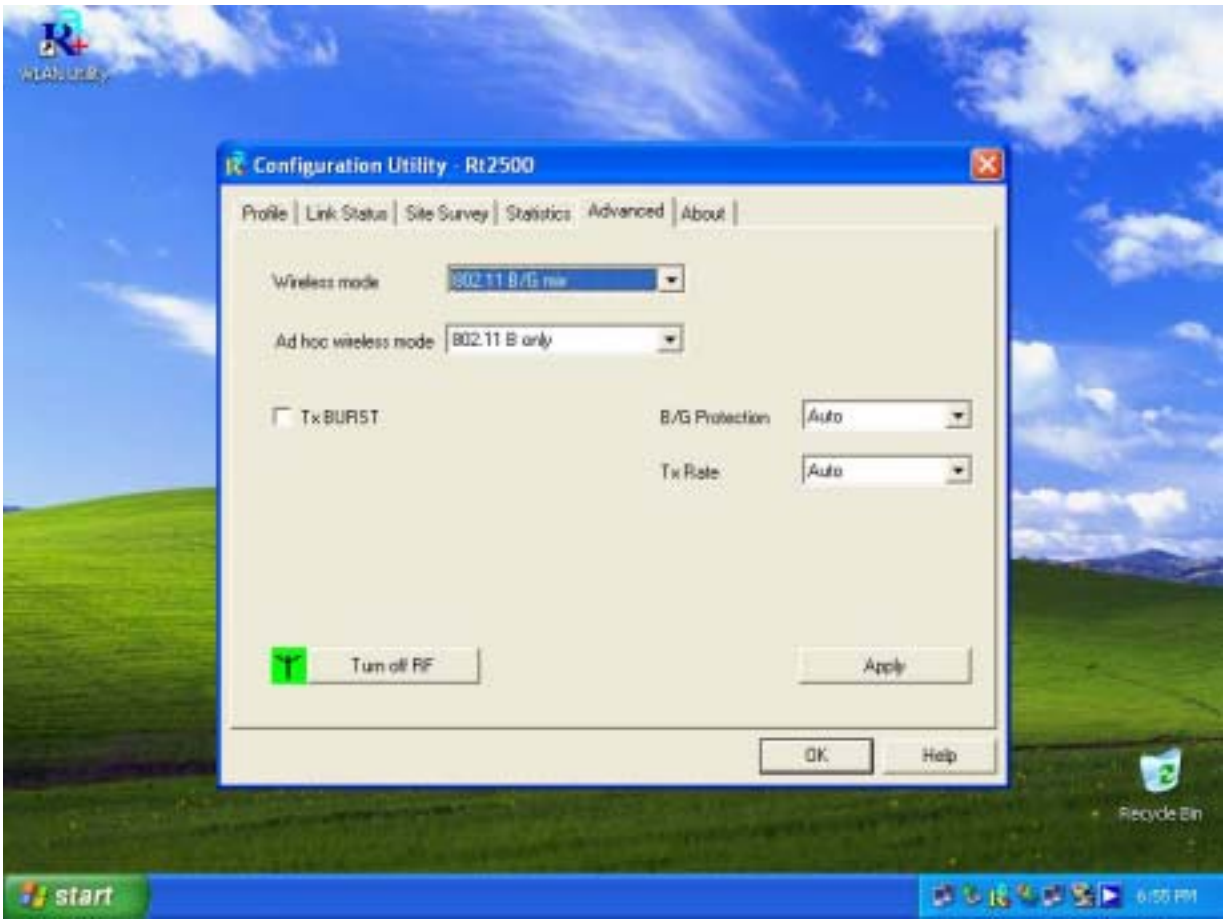
4.5.2 Receive Statistics Section

- Frames Received Successfully: The number of successfully received frames.
- Frames Received with CRC Error: The number of received frames with CRC (Cyclical Redundancy Checking) error.
- Frames Dropped due to Out-of-Resource: The number of dropped frames.
- Duplicate Frames Received: The number of duplicate frames.

4.5.3 Button

- Reset Counter: Restart the displayed statistics.

4.6 Advance Tab



4.6.1 Drop Menu Section

- Wireless mode: Choose 802.11b only mode or 802.11b/g mix mode.
- Ad Hoc mode: When starting Ad Hoc network, you can specify 802.11b only mode or 802.11b/g mix mode.
- B/G Protection: 802.11b uses CCK modulation and 802.11g uses CCK–compatible OFDM modulation. Enable this to prevent the data collision in the concurrent 802.11b/g network. Auto (auto-detect) selection is recommended.
- Tx Rate: The selected link rate.

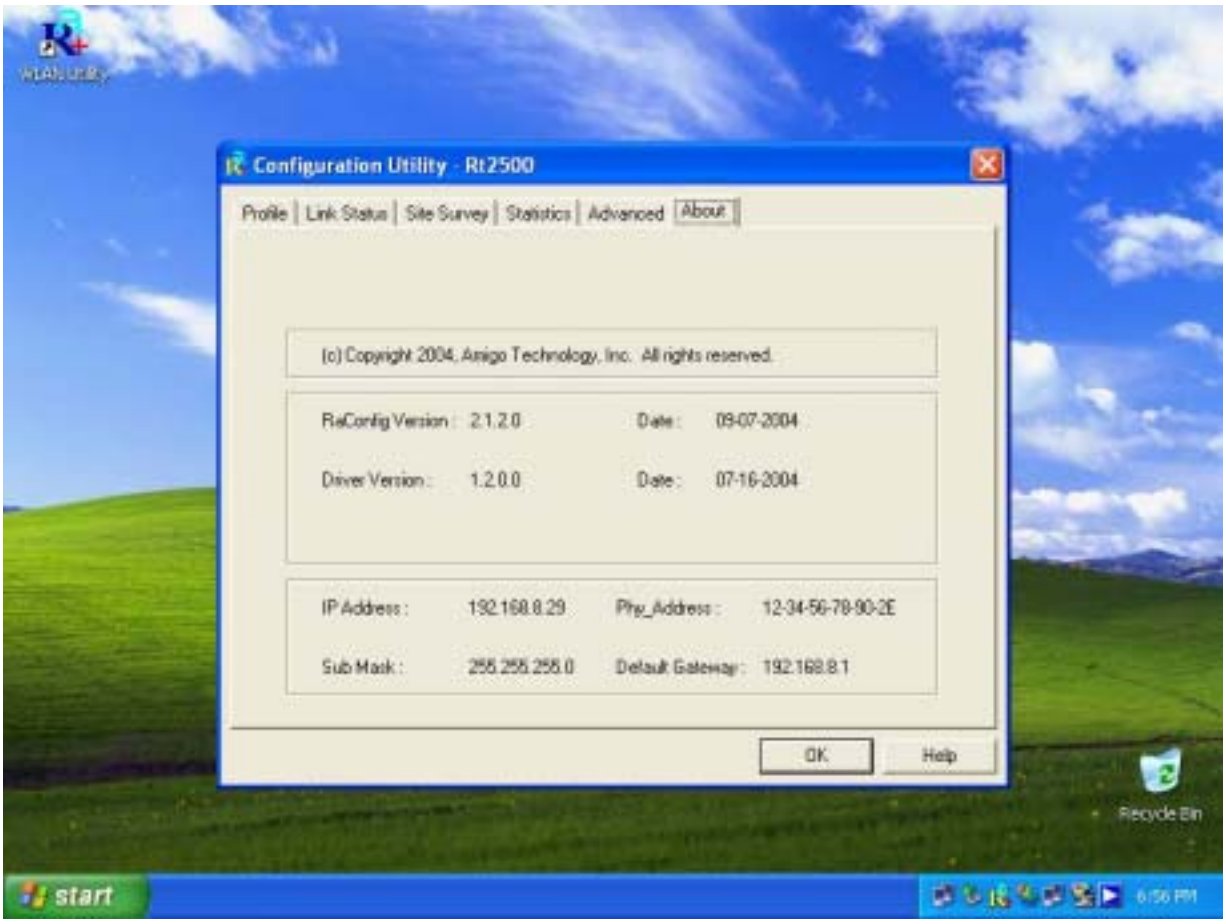
4.6.2 Checkbox Section

- Tx BURST: Check to enable the Pocket USB to transmit more data in a frame interval.

4.6.3 Icons & Buttons Section

- Radio On: Enable radio transmission.
- Radio Off: Disable radio transmission.
- Apply: Confirm your settings.

4.7 About Tab



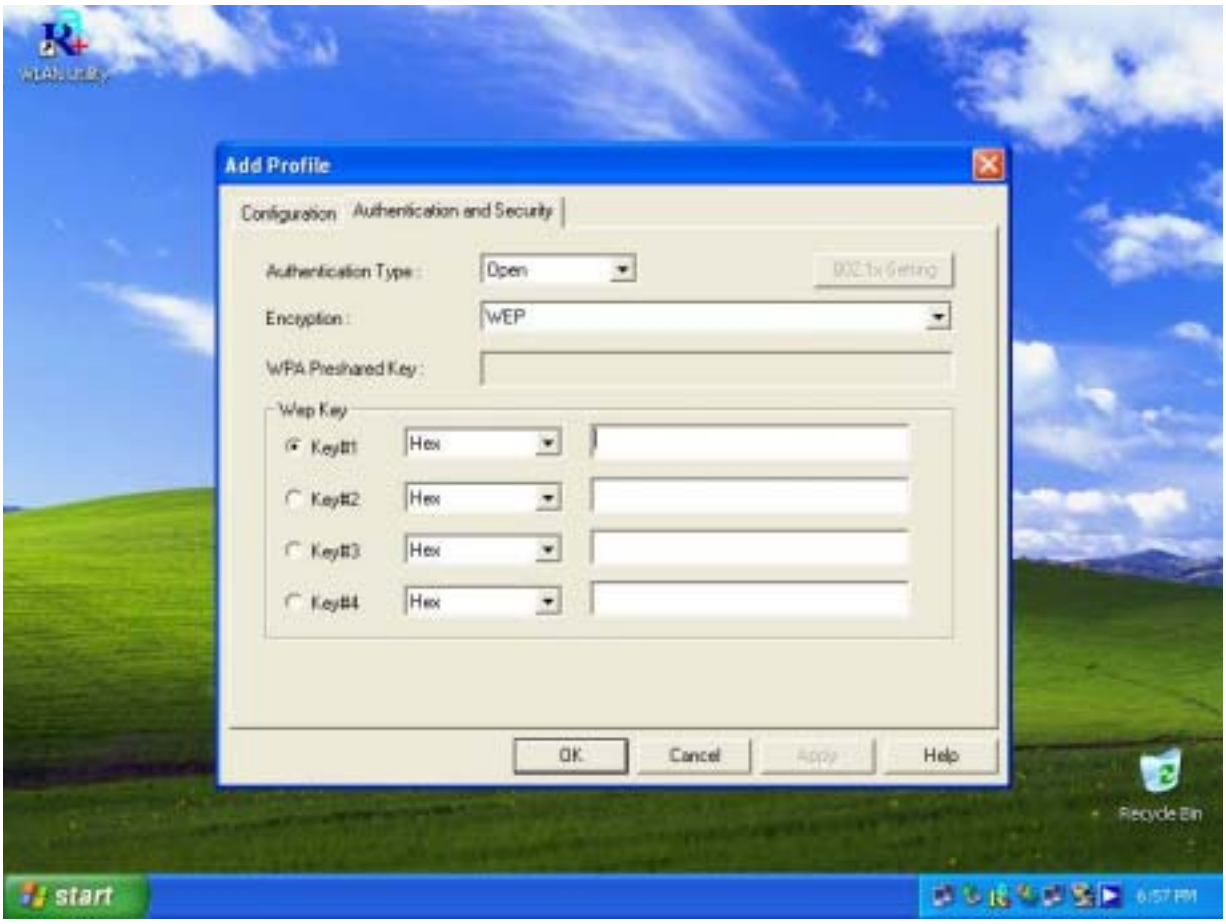
- RaConfig Version: Version and released date of this Pocket USB's utility.
- Driver Version: Version and released date of this Pocket USB's driver.
- IP Address: IP address of this Pocket USB.
- Phy_Address: Phy_address of this Pocket USB.
- Sub Mask: Sub Mask of this Pocket USB.
- Default Gateway: Default gateway of this Pocket USB.

4.8 Add Profile

4.8.1 Configuration Tab

- Profile Name: Specify a name for this profile.
- SSID: Specify a network name identified in the wireless network.
- PSM(Power Saving Mode): Select one power save scheme from CAM (Constantly Awake Mode) (No power save option adopted by the Pocket USB.) and PSM(Power Saving Mode) (Power Save option adopted by the Pocket USB).
- Network Type: Select Infrastructure mode or Ad Hoc mode adopted by this network.
- TX Power: Select the transmit power of this Pocket USB. 100% is recommended.
- Preamble: Select the length of the CRC block for communication between the AP and this Pocket USB. Make sure to select the appropriate preamble type the same as AP's. High network traffic areas should use the shorter preamble type. Auto (follow AP's preamble type) selection is recommended. This field is supported only in Infrastructure mode and currently disabled.
- RTS Threshold: Designed to prevent the Hidden Node issue, a problem happens in the wireless network when two wireless adapters served by the same AP can't communicate each other or have collision. Normally, the value of RTS Threshold is needless to change. The default value is 2312.
- Fragment Threshold: Enable to increase the transmission efficiency by split mechanism. The default value is 2312.

4.8.2 Authentication & Security Tab



- Authentication Type: Select the Authentication type adopted by the network. These types include None, Shared, WPA and WPA-PSK.
- 802.1X Setting: This button is enabled when you choose Open/Shared/WPA authentication types. Below table lists all different authentication types that you can use. Each type requires unique certificate or ID/password. You may need to consult the network administrator about the 802.1X settings adopted by the wireless network.

A: Use client certificate B: Use server certificate C: Type User/Password

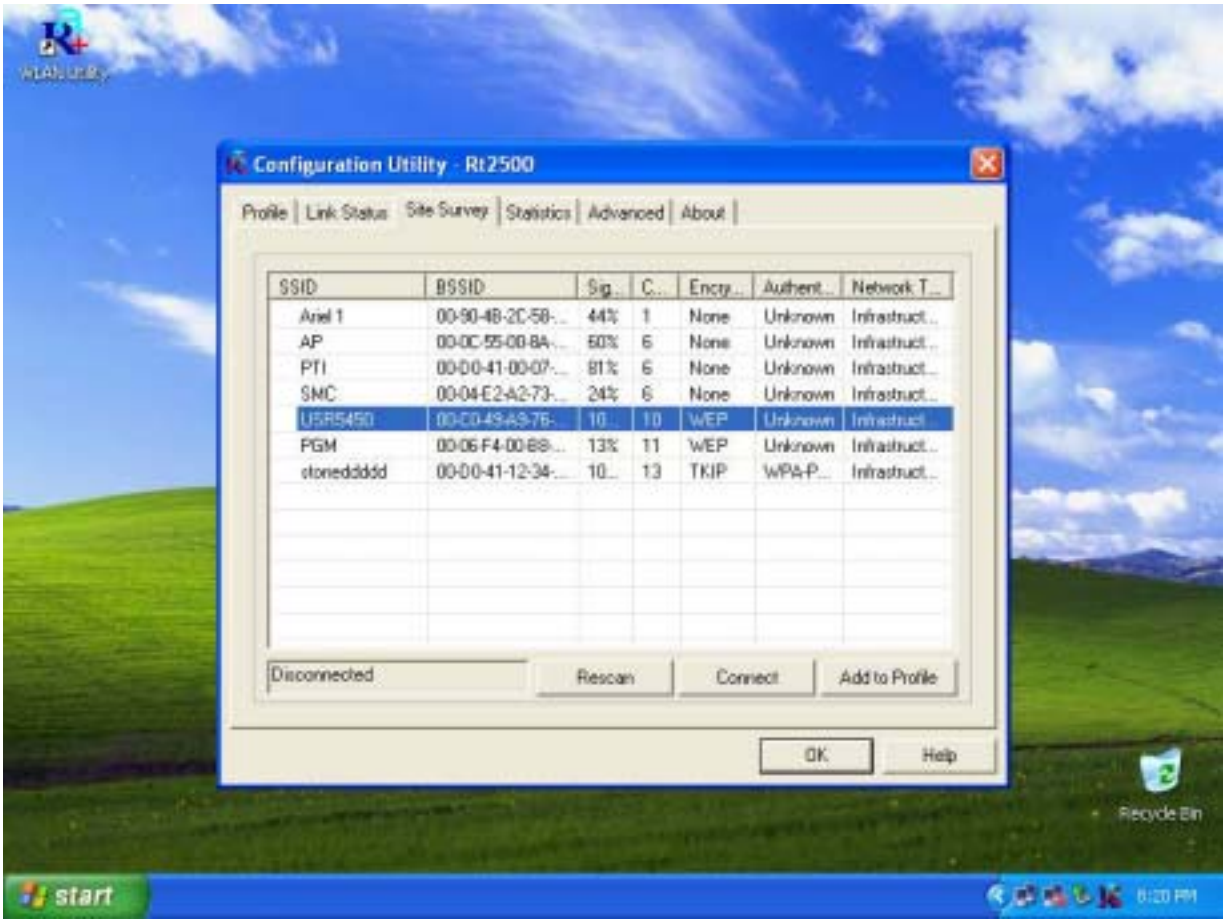
802.11 Auth Type	802.1x Auth Type	Tunnel Auth	C	C + A	C + B	C + A + B	A	A + B
OPEN	PEAP	MSCHAP v2	OK	OK	OK	OK		
		TLS/Smartcard		OK		OK		
		Token Card	OK	OK	OK	OK		
	TLS/Smartcard	No option					OK	OK
	TTLS	CHAP	OK	OK	OK	OK		
		MS-CHAP	OK	OK	OK	OK		
		MS-CHAP v2	OK	OK	OK	OK		
		PAP	OK	OK	OK	OK		
		EAP-MD5	OK	OK	OK	OK		
	LEAP	No option	OK					
	MD5	No option	OK					
Shared[1]	PEAP	MSCHAP v2	OK	OK	OK	OK		
		TLS/Smartcard		OK		OK		
		Token Card	OK	OK	OK	OK		
	TLS/Smartcard	No option					OK	OK
	TTLS	CHAP	OK	OK	OK	OK		
		MS-CHAP	OK	OK	OK	OK		
		MS-CHAP v2	OK	OK	OK	OK		
		PAP	OK	OK	OK	OK		
		EAP-MD5	OK	OK	OK	OK		
	LEAP	No option	OK					
	MD5	No option	OK					
WPA	PEAP	MSCHAP v2	OK	OK	OK	OK		
		TLS/Smartcard		OK		OK		
		Token Card	OK	OK	OK	OK		
	TLS/Smartcard	No option					OK	OK
	TTLS	CHAP	OK	OK	OK	OK		
		MS-CHAP	OK	OK	OK	OK		
		MS-CHAP v2	OK	OK	OK	OK		
		PAP	OK	OK	OK	OK		
		EAP-MD5	OK	OK	OK	OK		
	LEAP	No option	OK					
WPA-PSK	Passphrase key only							

- Encryption: Select the Encryption type adopted by the network. These types include None, WEP, TKIP and AES.
- WPA Preshared Key: Input the key when using WPA-PSK authentication.
- WEP Key: Define up to four keys as follows:
  - Hex、40bits：10 hexadecimal letters
  - Hex、104bits：32 hexadecimal letters

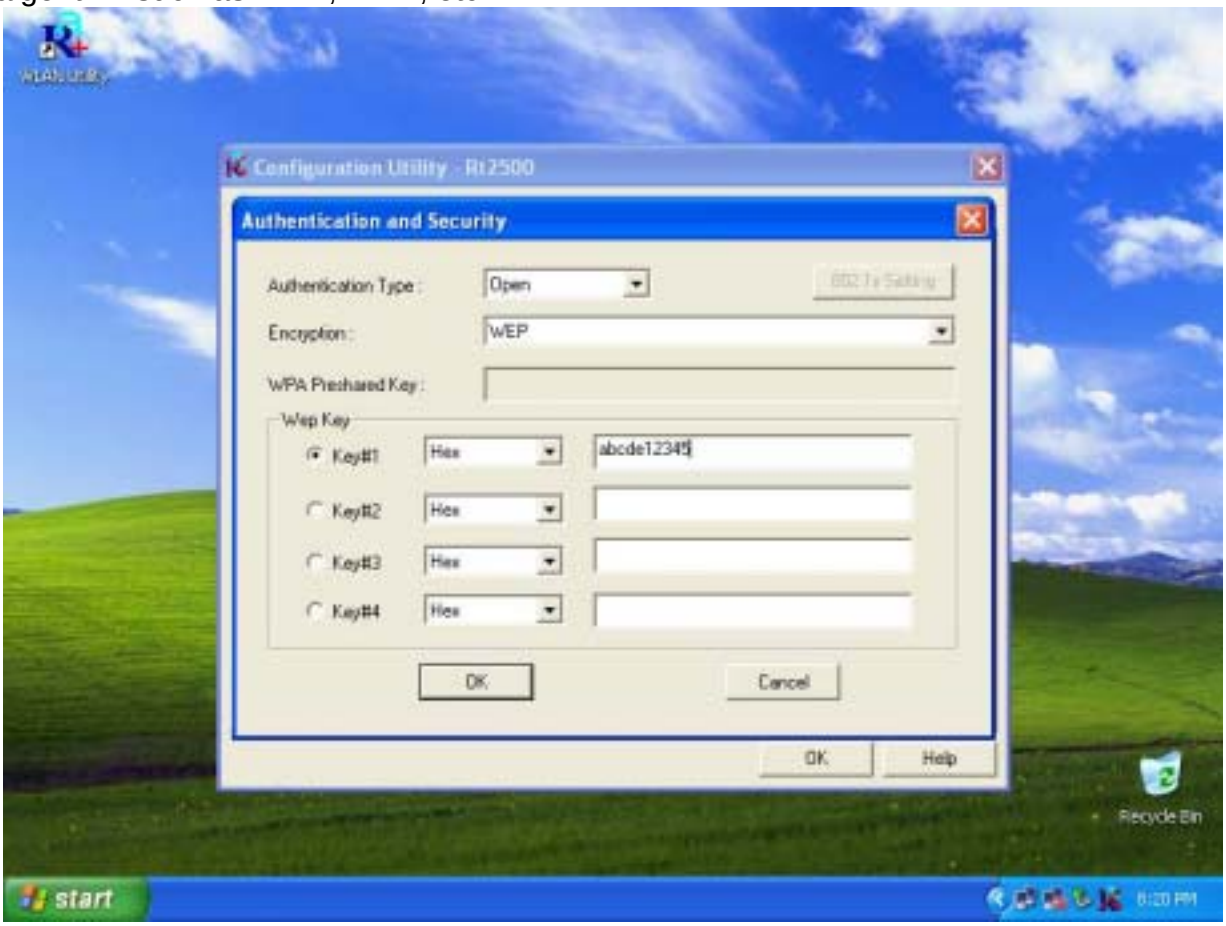
- ASCII、40bits：5 ASCII letters
- ASCII、104bits：16 ASCII letters

5.1 Connect to an Access Point in Infrastructure Mode

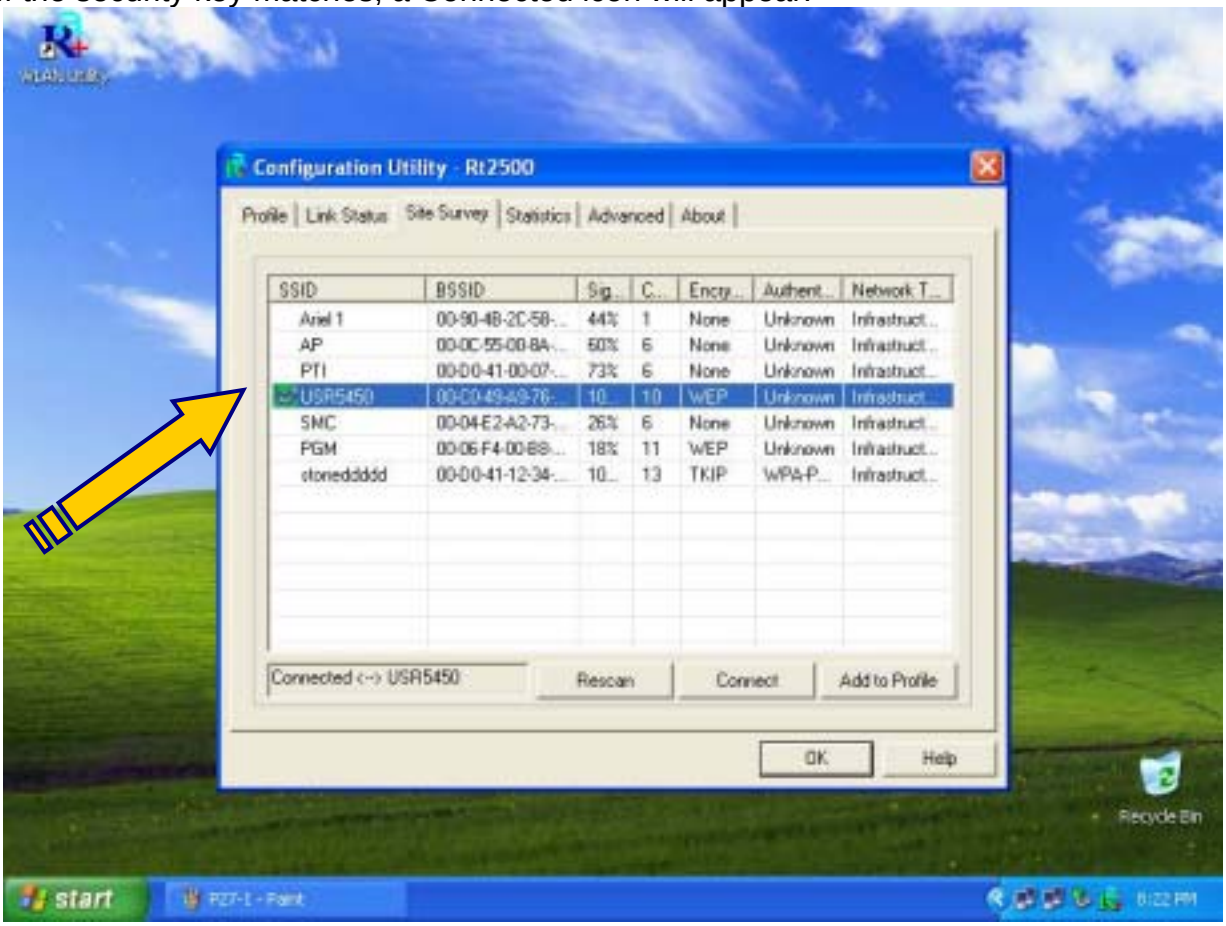
1. Refer to Chapter 3 Quick Start to Join in a Wireless Network to proceed step 1 ~ 2.
2. Select an AP that is in Infrastructure Mode and click the *Connect* button.



3. You may need to input security key when the selected AP is adopting wireless security algorithm such as WEP, WPA, etc.

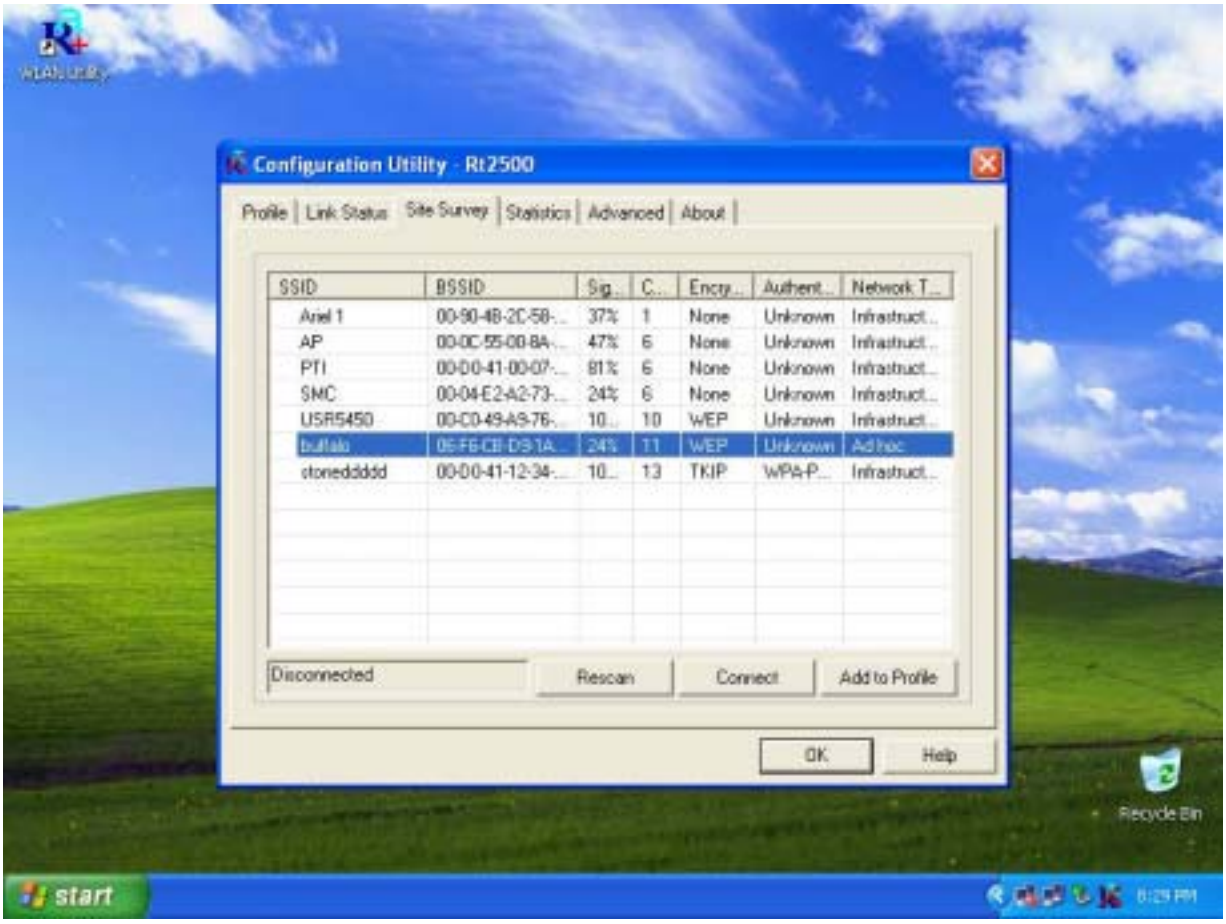


4. If the security key matches, a Connected icon will appear.

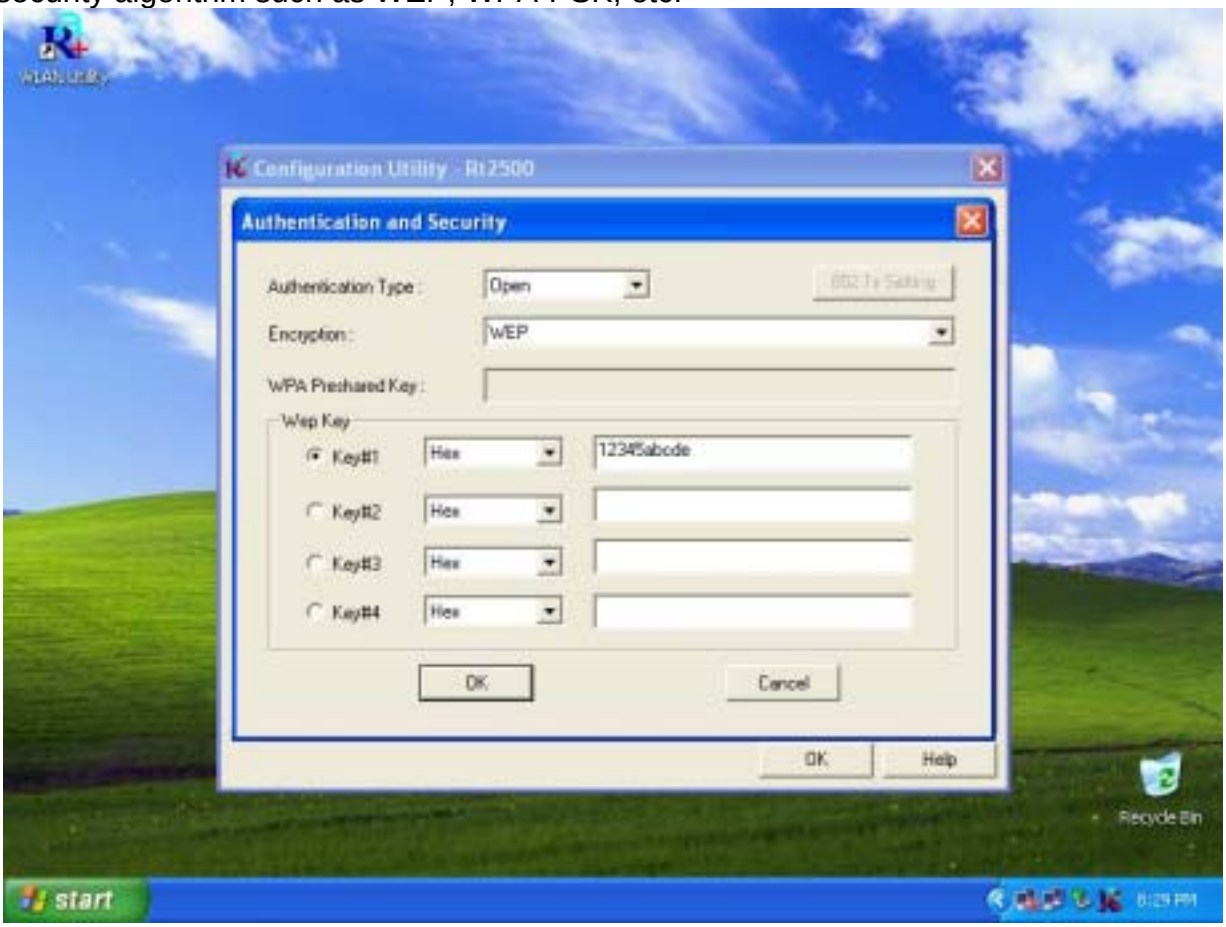


5.2 Connect to an Ad Hoc Station

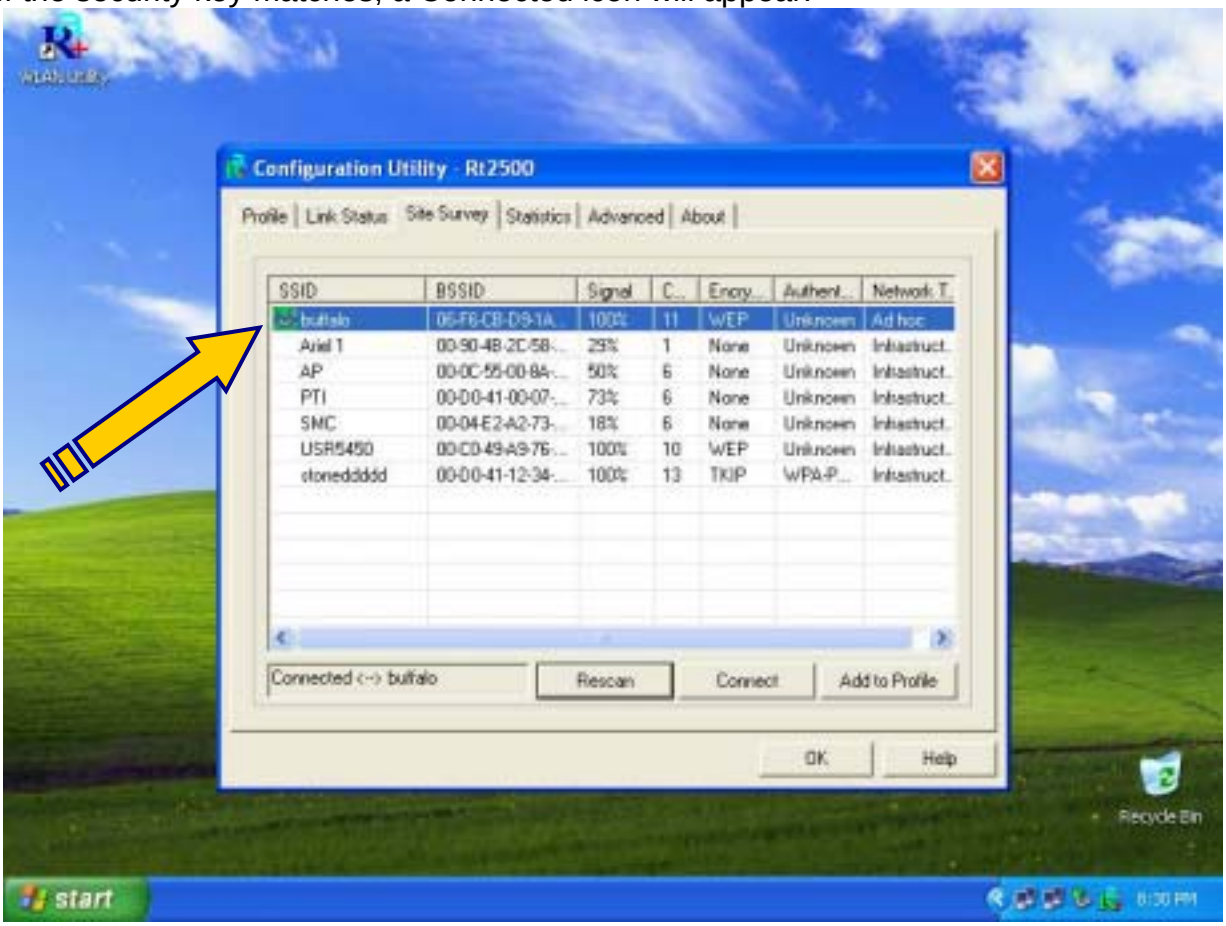
1. Refer to Chapter 3 Quick Start to Join in an Open Wireless Network to proceed step 1 ~ 2.
2. Select a station that is in Ad Hoc mode and click the *Connect* button.



3. You will need to input the security key when the selected station is adopting wireless security algorithm such as WEP, WPA-PSK, etc.

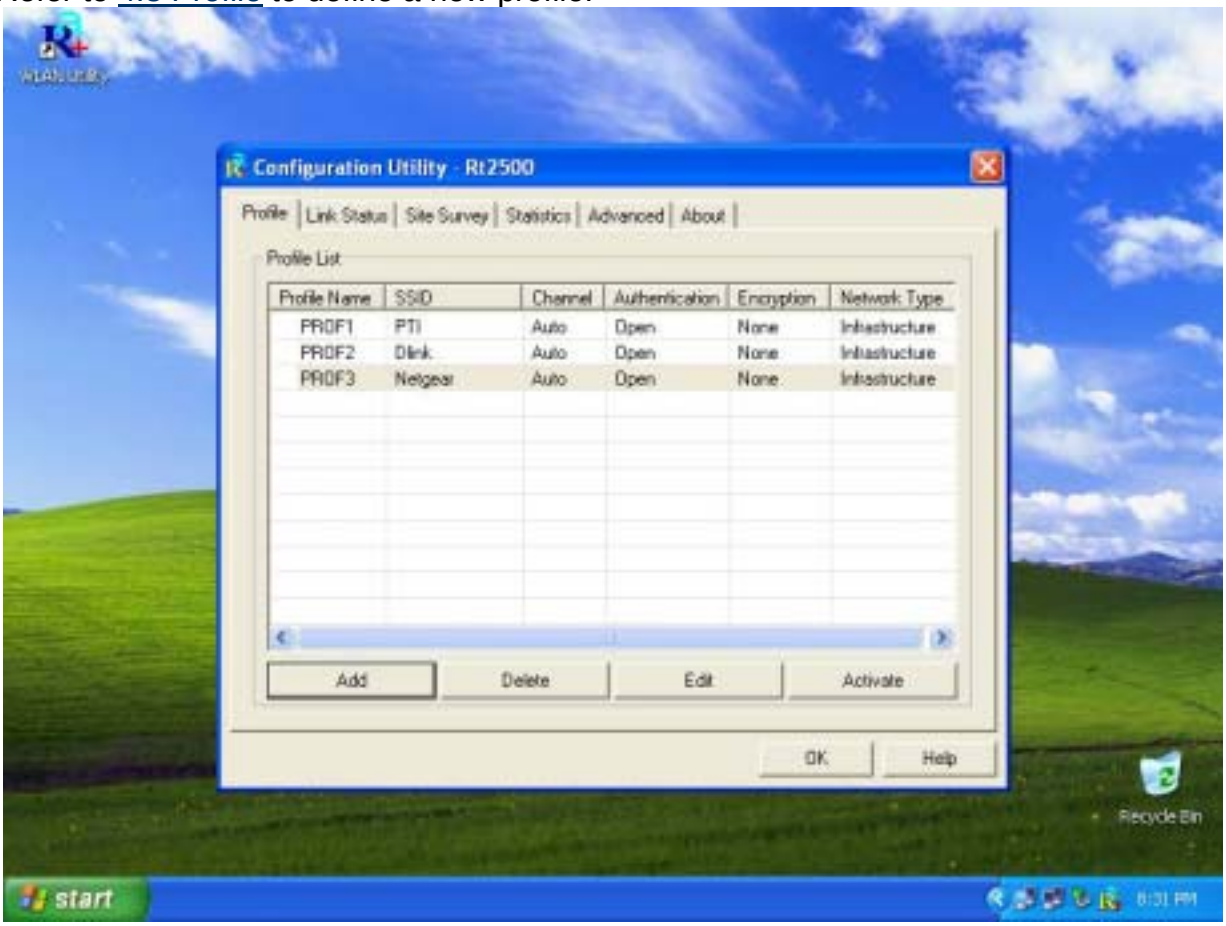


4. If the security key matches, a Connected icon will appear.

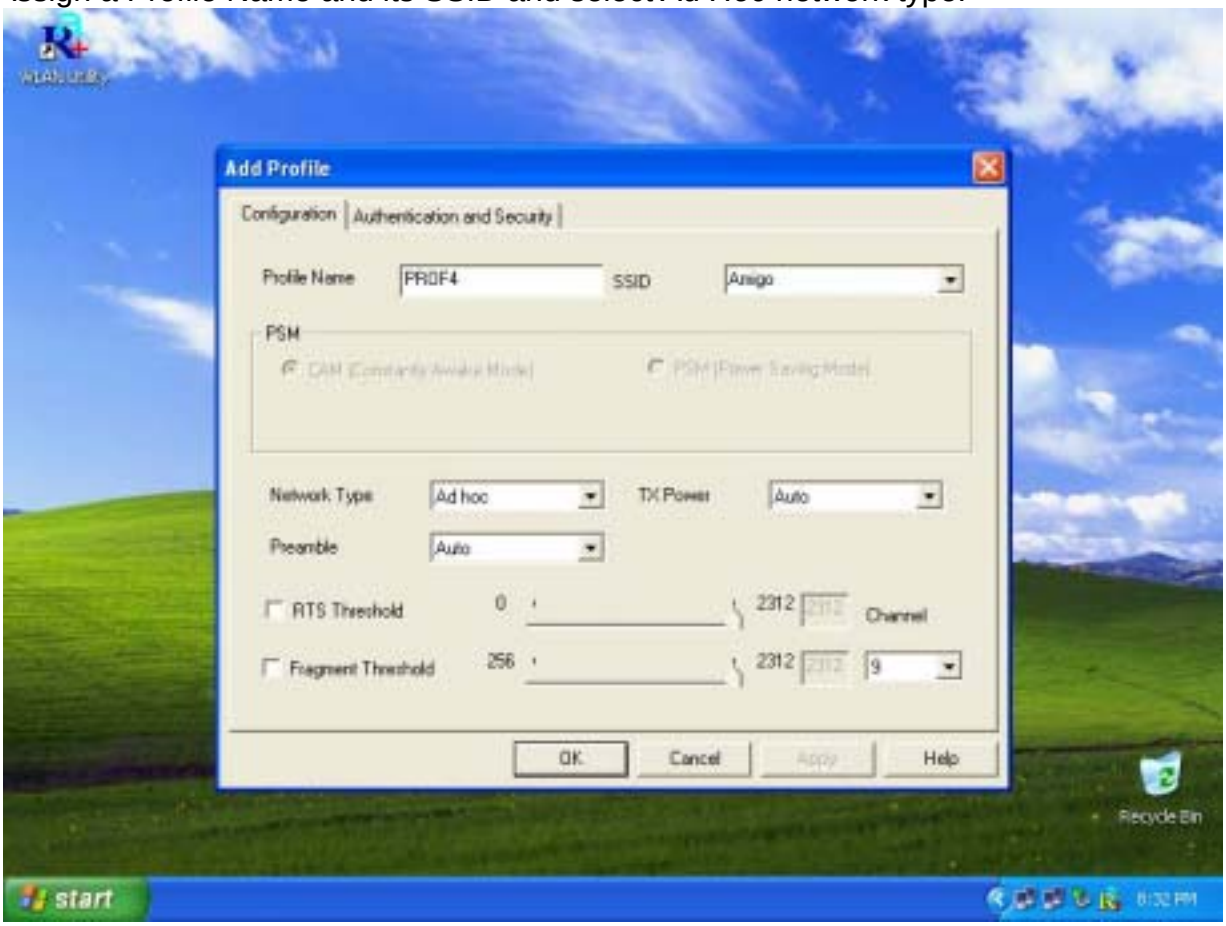


5.3 Start a New Ad Hoc Wireless Network

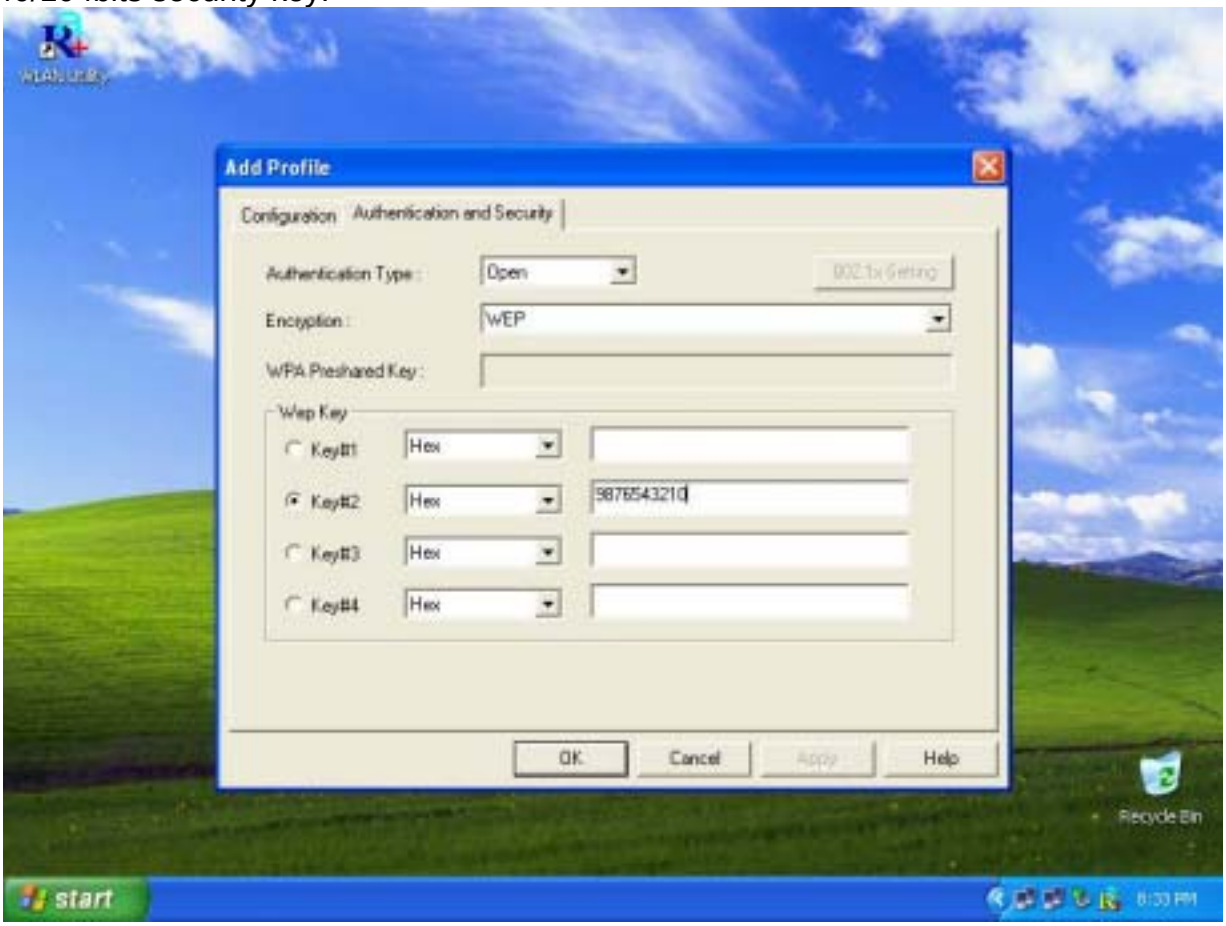
1. Refer to 4.8 Profile to define a new profile.



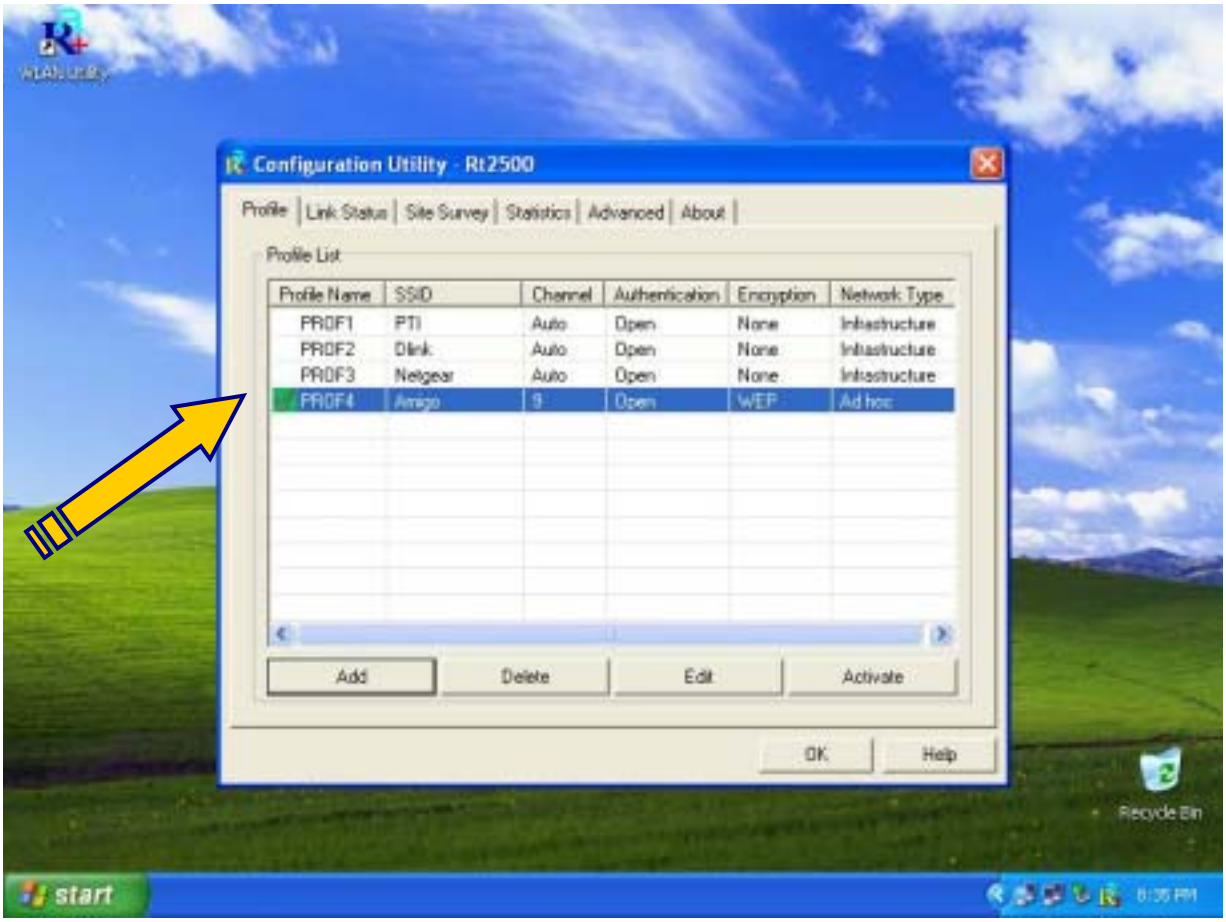
2. Assign a Profile Name and its SSID and select *Ad Hoc* network type.



3. You can use WEP security algorithm and to do so, you will need to define at least a set of 40/104bits security key.



4. Select this profile and click *Activate*. A new Ad Hoc wireless network starts now.



Chapter 6 Troubleshooting

1. **Question**: The product literature says this Wireless Pocket USB can operate at 54 Mbps. Why do I see no more than 11 Mbps speed on my WLAN Configuration Utility status?

   Answer: While you are connecting to an 802.11b network, the maximum 802.11b speed is 11Mbps. Moreover, the wireless connection quality between this Pocket USB and other stations will be limited to the space layout and thus the connection speed can't reach to 54Mbps.

2. **Question**: The Wireless Pocket USB's LEDs are not lit?

   Answer: Remove and reinsert the Wireless Pocket USB. Check the Windows device manager to see if this device is recognized and enabled. Reload the Wireless Pocket USB's software, if necessary. Try to install it in a different slot on your system.

3. **Question**: I cannot connect to the Access Point or the wireless Router?

   Answer: Make sure the same settings such as SSID, Channel and Security on the Wireless Pocket USB is the same as those on the Access Point or the wireless Router. Move closer and try again.

4. **Question**: I can connect to the Access Point, but I cannot connect to other computers on the network or the Internet?

   Answer: Check to make sure that the access point is physically connected to the Ethernet network. Make sure that the IP address and the Windows networking parameters are all configured correctly by the connected AP. Restart your cable/DSL modem, router and access point.

5. **Question**: Why my Wireless Pocket USB suddenly stop response, yet it was working regularly before?

   Answer: When changing the AP's configuration from non-WEP to WEP enabled, while the Wireless Pocket USB is connected, the device will enter infinite scan mode, and only un-plugging the device will stop this phenomenon.

6. **Question**: The product literature says this Wireless Pocket USB can operate far to 328 feet (100 meters). Why can't it reach that range when I am using it?

Answer: In optimal condition, this device can reach the maximum range. However, environmental factors such as other electric equipments and layout of building may adversely affect the effective range.